

(16,384.)

SUPREME COURT OF THE UNITED STATES.

OCTOBER TERM, 1898.

No. 25.

THE SAN DIEGO LAND AND TOWN COMPANY,
APPELLANT,

vs.

THE CITY OF NATIONAL CITY AND JOHN G. ROUTSAN,
GEORGE W. DEFORD, S. S. JOHNSTON, J. H. KINCAID,
AND FRED H. SANBORN, TRUSTEES OF SAID CITY.

APPEAL FROM THE CIRCUIT COURT OF THE UNITED STATES FOR
THE SOUTHERN DISTRICT OF CALIFORNIA.

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1 In the Circuit Court of the United States of America of the Ninth Judicial Circuit in and for the Southern District of California.

THE SAN DIEGO LAND AND TOWN COMPANY, a Corporation, Complainant,	}	No. 648.
vs.		
THE CITY OF NATIONAL CITY, a Municipal Corporation, and John G. Routson, George W. Deford, S. S. Johnston, J. H. Kincaid, and Fred H. Samborn, Trustees of said City, Defendants.	}	

2 In the Circuit Court of the United States, Ninth Circuit, Southern District of California.

THE SAN DIEGO LAND AND TOWN COMPANY, a Corporation, Complainant,	}	Bill in Equity.
vs.		
THE CITY OF NATIONAL CITY, a Municipal Corporation, and John G. Routson, George W. Deford, S. S. Johnston, J. H. Kincaid, and Fred H. Samborn, Trustees of said City, Defendants.	}	

To the honorable the judges of the circuit court of the United States within and for the southern district of California, sitting in equity:

The San Diego Land and Town Company, a corporation duly organized and existing under and by virtue of the laws of the State of Kansas and a resident and citizen of said State, brings this its bill against the City of National City, a municipal corporation organized and existing under and by virtue of the laws of the State of California and a resident and citizen of the county of San Diego, in said State, and John G. Routson, George W. Deford, S. S. Johnston, J. H. Kincaid, and Fred H. Samborn, trustees of said city and residents and citizens of National City, county of San Diego and State of California, and in the district aforesaid.

And your orator complains and says that it is, and was at all the times herein mentioned, a corporation duly organized and existing under and by virtue of the laws of the State of Kansas and doing business in the State of California.

That it is and has been during said times the owner of valuable water, water rights, reservoirs, and an entire water system for furnishing water to consumers for domestic, irrigation, and other purposes for which water is needed for consumption, and of a franchise for the impounding, sale, disposition, and distribution of the waters owned and stored by it to said city of National City and its inhabitants.

That its main reservoir and supply of water is and was at the times hereinafter mentioned situate in the Sweetwater river, so called, a small stream in the said county of San Diego, about five

miles distant from the defendant The City of National City, and its system of reservoirs, mains, flumes, aqueducts, and pipes covers and can supply but a limited amount of territory, consisting in part of certain farming lands within and outside of said National City, and in part of the residence portion of said city of National City.

That the complainant has, in procuring the water and water rights, reservoirs, and distributing system owned by it as aforesaid, and preparing itself to supply consumers with water expended up to January 1, 1895, the sum of one million twenty-two thousand four hundred seventy-three and $\frac{5}{8}$ dollars (\$1,022,475.54), which was reasonably necessary for said purposes.

That by the expenditure of said large sum it has procured and owns water, water rights, a reservoir site, and a reservoir of the capacity of six thousand million gallons of water, and has constructed and laid therefrom its water mains necessary to supply said defendant, The City of National City, and the country between its said source of supply and said city with water, and has constructed and put in mains, pipes, and all other things necessary to connect said water supply with the premises and buildings of said city
4 and its inhabitants and to furnish them with water, and was at the times herein mentioned and is now furnishing said city and its inhabitants with water.

That the annual expense of operating and keeping in repair its said reservoir and water system and of furnishing consumers with water is, including interest on bonds and excluding depreciation of its system, twenty-two thousand five hundred and thirty-four and $\frac{9}{10}$ dollars (\$22,534.99).

That the cost of putting in its said distributing system within said city alone, and not including the cost incurred by it outside of the limits of said city, amounted, up to the time of the passage of the ordinance hereinafter mentioned, to the sum of one hundred sixty-one thousand six hundred and sixty-six and $\frac{4}{10}$ dollars (\$161,666.40); that at the time of the passage of said ordinance improvements were under way which would increase said last-mentioned amount by the sum of twenty-two thousand eighty-seven and $\frac{5}{10}$ dollars (\$22,087.50), and that said improvements will be complete before said ordinance takes effect, to wit, before the first day of July, 1895.

That in order to pay the complainant the amount of its annual expenses and an income of six per cent. on the amount actually invested in its said water, water rights, and water system up to the date of the passage of said ordinance and including said sum of twenty-two thousand and eighty-seven and $\frac{5}{10}$ dollars (\$22,087.50), it is necessary that such rates of water sold and consumed be so fixed as to realize to the complainant the sum of one hundred nineteen thousand seven hundred ninety-one $\frac{6}{10}$ dollars (\$119,791.66.)

That the total amount that was realized by the complainant from sales of water and water rights and from all other sources on account of its business of supplying water to consumers, as aforesaid, outside of the said city of National City for the year ending
5 July 1st, 1894, was about fifteen thousand dollars (\$15,000),

and no more than that sum can probably be realized for the year ending July 1st, 1895.

That all of the mains and pipes of the complainant and other parts of its property so used in furnishing water to consumers are perishable property and require to be replaced at least once in sixteen years, and require frequent repairs.

That in order to acquire said water and water rights and construct its said system of water works the complainant was compelled to and did borrow large sums of money, to wit, three hundred thousand dollars (\$300,000.00), and it is compelled to pay as interest thereon the sum of twenty-one thousand dollars (\$21,000.00) annually, which sum must be realized from the sales of its water and is a part of its operating expenses; that the proportionate share of the revenues of the complainant that should be raised by water rates within the limits of said National City as compared with the revenues that should be raised and paid as water rates by consumers outside of said city is at least one-half.

That the amount that can be realized from said city and its inhabitants per annum from the rates fixed, as hereinafter alleged, is about ten thousand seven hundred and fifteen dollars (\$10,715.00) and no more.

That the value of the water, water rights, reservoirs, franchises, and property necessary for the proper operation of its business and now owned by the complainant is one million one hundred thousand dollars (\$1,100,000.00), and the same is necessary for the use of the complainant in furnishing water to said city and its inhabitants.

That no other person or corporation is or ever has been furnishing a supply of water to said city, nor is there now nor has there been any other system of water works by which said city or its inhabitants can be furnished with water, but the franchise and right of the complainant to furnish water to said city and its inhabitants is not exclusive of other persons or corporations.

That the defendant The City of National City is a municipal corporation of the sixth class organized under the general laws of the State of California, and the defendants John G. Routson, George W. Deford, S. S. Johnston, Joseph H. Kincaid, and Fred H. Samborn are and were at the times mentioned herein the duly elected, qualified, and acting trustees and composed the board of trustees and law-making power of said city of National City.

That on the 20th day of February, 1895, the said board of trustees, assuming and claiming to act under and in accordance with the constitution and laws of the State of California, passed and adopted a pretended ordinance of said city purporting to fix the water rates to be charged for water sold and furnished by the complainant to consumers within said city; which pretended ordinance was in the words and figures following, to wit:

Ordinance No. 118.

An ordinance establishing water rates in the city of National City, California.

The board of trustees of the city of National City do ordain as follows:

SECTION 1. That the rates or compensation to be collected by any person, company or corporation for the use of water supplied to the city of National City, or to the inhabitants thereof, or to any corporation, company or person doing business or using water therein, are hereby fixed for the year beginning July 1st, 1895, as herein-after provided, and that no person, company or corporation
7 shall charge, collect or receive water rates in said city otherwise than as so established, to wit:

That, for the purposes of this ordinance, the uses of water are divided into the four following classes: Class first, for domestic purposes. Class second, for public uses. Class third, for mechanical and manufacturing purposes. Class fourth, for the purpose of irrigation.

Class first.—For domestic purposes the rates for this class shall be as follows:

1. For water furnished to dwellings, tenement-houses, flats and other apartments, the same being occupied by not more than four persons, one dollar (\$1.00) per month, and for each additional person fifteen cents (15) per month.

2. For each bath-tub, thirty (30) cents per month.

3. For each water-closet, forty (40) cents per month.

4. For each urinal, twenty cents (20) per month.

5. For each horse or cow, four dollars (\$4.00) per annum.

6. For each carriage, two dollars (\$2.00) per annum.

The meter rates for class first shall be forty (40) cents for each one thousand gallons.

Class two.—For public uses:

1. For hotels, lodging-houses, in addition to family rates, fifteen (15) cents per month for each bed.

2. Boarding-houses, in addition to family rates, fifteen (15) cents per month for each person.

3. Restaurants and coffee-houses, one dollar and fifty cents (\$1.50) to three dollars and fifty cents (\$3.50) per month.

4. Saloons and bars, one dollar and fifty cents (\$1.50) per month.

8 5. Stores, one dollar (\$1.00) to one dollar and fifty cents (\$1.50) per month.

6. Offices, fifty cents (50) to one dollar (\$1.00) per month.

7. Dental rooms, one dollar (\$1.00) per month.

8. Bakeries, for each twenty-five barrels of flour used, one dollar and seventy-five cents (\$1.75).

9. Blacksmith and wagon shops, for first forge one dollar (\$1.00) per month, for each additional forge, fifty cents (50) per month.

10. Laundries, from one dollar to two dollars per month.

11. Drug stores, one dollar and seventy-five cents (\$1.75) per month.

12. Barber shops, for first chair, seventy-five cents (75) per month, forty-five cents (45) per month for each additional chair.

13. For bath-tubs in hotels, public houses, boarding-houses and barber shops, etc., one dollar and fifty cents (\$1.50) per month.

14. Water-closets in hotels and public buildings, one dollar (\$1.00) per month.

15. Urinals, public, fifty cents (50) per month.

16. For slaking lime, per barrel fifteen cents (15), for wetting brick per thousand ten cents (10), for mixing cement per barrel ten cents (10).

17. For water furnished to the city for fire purposes through hydrants, for street sprinkling, watering street trees, and for not to exceed two public watering troughs, \$100 per month.

9 18. Meter rates for class two, public uses, except for water furnished to the city of National City, for the first 5,000 gallons 40 cents per thousand gallons per month; for all exceeding 5,000 gallons to 15,000 gallons per month, thirty cents (30) per 1,000 gallons; for all exceeding 15,000 gallons per month, 20 cents per 1,000 gallons.

Class three.—Mechanical and manufacturing purposes:

Rates as may be agreed upon. When no agreement can be obtained meter rates at 8 cents per 1,000 gallons.

Class four.—For irrigation:

For the purposes of this ordinance the unit of measurement for all tracts of land containing less than one acre shall be a lot 25 by 115 feet.

1. For water furnished to irrigate orchards and small fruits, four dollars (\$4.00) per acre per annum.

2. For water furnished to irrigate nurseries and vegetable gardens, seven (\$7.00) dollars per acre per annum.

3. Meter rates for acre property, two cents (.02) per thousand gallons.

4. For water furnished a single lot which contains a dwelling or building used for business purposes, said water being used through a hose for protection against fire, washing windows, sprinkling sidewalks and streets, watering lawns, and gardens, \$3.50 per annum or meter rates at 40 cents per 1,000 gallons.

5. For irrigating gardens and nursery stock, for each lot two dollars (\$2.00) per annum or meter rates at twenty (20) cents per 1,000 gallons.

6. For irrigating orchards and small fruits, for each lot \$1.50 per annum or meter rates at ten (10) cents per 1,000 gallons.

10 SECTION 2. Any person, company or corporation so furnishing water in said city shall have power in all cases, except in case of water furnished for the city corporation, to apply meters, at their own cost, and collect all meter rates.

It shall be the duty of any person, company or corporation so furnishing water, on a written demand made by the consumer, to apply a meter at the cost of the company within a reasonable time

thereafter, so as to correctly measure the amount of water delivered to him, and in such case the consumer shall pay thirty-five cents per month for the use, cleaning and repair of said meter.

All water rates except meter rates are due and payable monthly or quarterly in advance, and if not so paid shall be subject to an addition of 5 per cent.

Meter rates are due and payable monthly on presentation of bill, and upon meter rates an advance monthly deposit for each month, not exceeding three-fourths of the value of the estimated quantity of water to be consumed, may be required.

This ordinance takes effect July 1st, 1895.

Passed, approved and ordered published by the board of trustees of the city of National City, California, this 20th day of February, 1895, by the following vote:

Trustee Jos. H. Kincaid, aye.

Trustee S. S. Johnston, aye.

Trustee Fred H. Samborn, aye.

Trustee Geo. W. Deford, aye.

Trustee John G. Routson, aye.

Approved this 21st day of February, 1895.

JOHN G. ROUTSON,

President of the Board of Trustees.

Attest:

[SEAL.] H. A. HARBAUGH, *City Clerk.*

11 That said ordinance was duly published as required by law.

And this complainant alleges that said pretended ordinance is and was void and of no effect for the following reasons, viz:

a. That no notice of the fixing of said water rates was ever given or any opportunity or any time or place fixed by any such notice or otherwise when any hearing upon the matter of fixing said rates would be given.

b. There is no provision in the constitution or laws of the State of California under and by virtue of which said board of trustees assumed to act in fixing said water rates and in adopting said pretended ordinance, or any law of said State providing for or authorizing any notice of the time or place of any hearing on the matter of fixing water rates or providing for or authorizing any hearing thereon or giving any person or corporation an opportunity to be heard upon the question of the fixing of water rates.

c. Said water rates were fixed by said board of trustees arbitrarily and without notice to or any trial or taking of evidence with reference thereto, and were fixed so low that they are unreasonable and unjust, and at the rates so fixed the complainant cannot realize therefrom and from all other sources within and outside of the limits of said city of National City sufficient to pay its ordinary and necessary operating expenses and pay any dividends whatever to its stockholders or interest or profits on its large investment.

d. That so long as said pretended ordinance remains in force the complainant is, by the laws of the State of California, required and

12 compelled to supply water to all consumers within said city at the rates so fixed, which it can only do at a loss to it, and it avers and alleges that to compel it to furnish water at said rates is a practical confiscation of its property and a taking thereof without due process of law.

The complainant further showeth that the said city of National City is composed, in large part, of a territory of farming lands devoted to the raising of fruits and other products, only a small part thereof being occupied by residences or business houses.

That prior to the adoption of the pretended ordinance above set forth the complainant, in order to meet in part the large outlay it had been compelled to make in and about its said water system, had established a rate of one hundred dollars per acre for a perpetual water right for the purposes of irrigation, and required the purchase and payment for such water right before extending its distributing system to lands not yet supplied with water or furnishing such lands with water, which rate was made uniform and applicable alike to all lands to be furnished with water within and outside of said city and said payment for a water right has ever since been charged as a condition upon which alone water will be supplied to consumers for the purposes of irrigation, and many consumers had prior to the adoption of said ordinance purchased said water right and paid therefor.

That the rate charged for said water right was and is reasonable and just and was and is necessary to enable the complainant to keep up and extend its water system so as to supply water to consumers who require and need the same, and without which it cannot operate and extend its plant so as to render it available and beneficial to all water-consumers that could, with the necessary expenditure, be supplied from said system.

13 That the lands covered by complainant's system are arid and of but little value without water, and a water right such as complainant grants to consumers increases the land in value more than three times the amount charged for such right and is of great value to the land-owner.

That the pretended ordinance above set out fixes the total charge that may be made by the complainant for water furnished for purposes of irrigation at four dollars per acre per annum, and, as construed by said city and consumers, deprives the complainant of all right to make any charge for water rights, and said rate was fixed without taking into account or allowing in any way for such water right.

That the amount of four dollars per acre per annum is unreasonably low and requires the complainant to furnish water to consumers within the limits of said city for purposes of irrigation for less than it furnishes the same to consumers outside of the city for the same purpose, and so low that it cannot furnish the same without positive loss to itself.

That large numbers of persons residing within said city owning land therein and desiring to irrigate the same are demanding that their lands may be connected with the complainant's said water

system, and that their said lands be supplied with water at the said rate of four dollars per acre per annum and without any payment for a water right, and under the laws of the State of California if water is once furnished to said parties they thereby obtain a perpetual right to the use of water on their said lands without payment for such water right.

That until the questions as to the validity of said ordinance and of the right of the complainant to charge for a water right as a condition upon which it will furnish water for purposes of irrigation,

whether said ordinance is valid or invalid, are determined 14 the complainant cannot safely charge for such water rights or collect fair and reasonable rates for water furnished, by reason of which it will be damaged in a large sum, to wit, in the sum of twenty thousand dollars.

Your orator prays that the rates fixed by said board of trustees be declared void; that the constitution and laws of the State of California and the proceedings had by said board of trustees in pursuance thereof, as above stated, be declared to be in violation of the Constitution of the United States, and particularly of the fourteenth amendment thereof, section one, and that the taking of said water of the complainant without payment for the water right or the right to the use thereof is in violation of section 14 of the bill of rights of the constitution of the State of California.

Or, if the court shall determine said constitution and laws to be valid, the complainant prays that the rates fixed by said board of trustees be declared to be arbitrary, unreasonable, and unjust, and therefore void, and that the said board of trustees be ordered and required to adopt a new and reasonable rate of charges, as required by law, and that the enforcement of said ordinance be enjoined.

Your orator further prays that it be determined and decreed by the court that the complainant is entitled to charge and collect for water rights at reasonable rates as a condition upon which it will furnish water for the purpose of irrigation, notwithstanding the rates fixed by said board of trustees for water sold and furnished, and that your orator shall have generally such other and further relief as the nature of its case may require.

Therefore will your honors grant unto your orator the writ of subpœna, issuing out of and under the seal of this court, to be directed to said defendants, The City of National City, John G.

15 Routson, George W. Deford, S. S. Johnston, J. H. Kincaid, Fred H. Samborn, commanding them and each of them, by a certain day and under a certain penalty therein inserted, to appear before your honors in the circuit court aforesaid and then and there answer the premises and abide the order and decree of the court.

WORKS & WORKS,
Solicitors for Complainant.

STATE OF CALIFORNIA, }
County of San Diego, } ss:

John E. Boal, being duly sworn, says that he is an officer, to wit, the general manager, of the complainant in the above-entitled cause;

that he has read the foregoing bill in equity and knows the contents thereof; that the same is true of his own knowledge except as to the matters which are therein stated on information and belief, and as to those matters that he believes it to be true.

JOHN E. BOAL.

Subscribed and sworn to before me this 19th day of April, 1895.

[SEAL.]

LEWIS R. WORKS,

*Notary Public in and for the County of
San Diego, State of California.*

(Endorsed :) No. 648. U. S. circuit court, ninth circuit, southern district of California. San Diego Land & Town Company, complainant, vs. City of National City et al., defendants. Bill in equity. Filed Apr. 20, 1895. Wm. M. Van Dyke, clerk. Works & Works, attorneys for complainant.

16 UNITED STATES OF AMERICA :

Circuit Court of the United States, Ninth Circuit, Southern District of California. In Equity.

The President of the United States of America to the City of National City, a municipal corporation, and John G. Routson, George W. Deford, S. S. Johnston, J. H. Kincaid, and Fred H. Samborn, trustees of said city, Greeting :

You are hereby commanded that you be and appear in said circuit court of the United States aforesaid, at the court-room, in Los Angeles, on the third day of June, A. D. 1895, to answer a bill of complaint exhibited against you in said court by the San Diego Land and Town Company, a corporation duly organized and existing under and by virtue of the laws of the State of Kansas and a resident and citizen of the State of Kansas, and to do and receive what the said court shall have considered in that behalf; and this you are not to omit, under the penalty of five thousand dollars.

Witness the Honorable Melville W. Fuller, Chief Justice of the Supreme Court of the United States, this 23rd day of April, in the year of our Lord one thousand eight hundred and ninety-five, and of our Independence the one hundred and nineteenth.

[SEAL.]

WM. M. VAN DYKE, *Clerk.*

17 *Memorandum Pursuant to Rule 12, Supreme Court U. S.*

You are hereby required to enter your appearance in the above suit on or before the first Monday of June next at the clerk's office of said court pursuant to said bill; otherwise the said bill will be taken *pro confesso*.

WM. M. VAN DYKE, *Clerk.*

UNITED STATES MARSHAL'S OFFICE,
SOUTHERN DISTRICT OF CALIFORNIA.

I hereby certify that I received the within writ on the 23rd day of April, 1895, and personally served the same on the 30th day of

April, 1895, by delivering to and leaving with each of the following-named persons, viz., John G. Rouston, George W. Deford, S. S. Johnston, J. H. Kincaid, and Fred H. Sanborn, trustees of the city of National City, and by delivering to and leaving with John G. Routson, president of the board of trustees of the city of National City, a municipal corporation, for The City of National City, said defendants named therein, personally, at the county of San Diego, in said district, a certified copy thereof certified to by Wm. M. Van Dyke, clerk of the circuit court of the United States, 9th judicial circuit, in and for the southern district of California.

N. A. COVARRUBIAS,

U. S. Marshal,

By F. B. GOODRICH, *Deputy.*

Los Angeles, May 1st, 1895.

(Endorsed :) Original. No. 648. U. S. circuit court, ninth circuit, southern district of California. In equity. The San Diego Land and Town Company, a corporation, *vs.* The City of National City, a municipal corporation, *et al.* Subpœna. Filed May 1, 18 1895. Wm. M. Van Dyke, clerk.

19 In the Circuit Court of the United States, Ninth Circuit, Southern District of California.

THE SAN DIEGO LAND AND TOWN COMPANY,
a Corporation, Complainant,

vs.

THE CITY OF NATIONAL CITY, a Municipal Corporation, and John G. Routson, George W. Deford, S. S. Johnston, J. H. Kincaid, and Fred H. Sanborn, Trustees of said City, Defendants.

No. —. Answer of
the Defendants.

The joint and several answer of The City of National City and John G. Routson, George W. Deford, S. S. Johnston, J. H. Kincaid, and Fred H. Sanborn, impleaded as trustees of said city of National City, defendants, to the bill of complaint of The San Diego Land and Town Company, Complainant.

These defendants, saving and reserving unto themselves the benefit of all exceptions to the errors and imperfections in said bill contained, for answer to so much thereof as they are advised it is necessary or material for them to answer unto, do aver and say that—

They admit that the plaintiff is and at all times mentioned in the complaint was a corporation duly organized and existing under and by virtue of the laws of the State of Kansas and doing business in the State of California.

20 They deny that complainant is or at any time was the owner of water and water rights, as alleged in the complaint, otherwise than as the appropriator under the constitution and the

statutes of the State of California and the acts of Congress of the water of the natural stream in the said county of San Diego known as the Sweetwater river for sale, rental, and distribution to the public, including the defendant The City of National City and its inhabitants.

And, further answering, these defendants say that the complainant, in the months of September, 1886, and March, 1887, caused to be posted and recorded, pursuant to the provisions of title VIII of the Civil Code of the State of California, notices of the appropriation of 5,000 miners' inches of the water of said Sweetwater river for sale, rental, and distribution to the public, including the city of National City and its inhabitants, for irrigation of the lands under the flowage of its reservoir and for the domestic and other beneficial uses and purposes of the people there residing and who should reside on said lands and in said National City.

They admit that complainant is and has been during the times mentioned in the complaint the owner of a reservoir and system for furnishing water therefrom to consumers for domestic, irrigation, and other purposes for which water is needed for consumption and of a franchise for the impounding, sale, disposition, and distribution of the waters stored by it to said National City and its inhabitants, as well as to other territory under the flowage of said system and to the inhabitants of such territory.

21 And these defendants say that said franchise is and has been during the times mentioned in the complaint exercised by complainant, a non-resident, foreign corporation, by virtue of the comity of the State of California and subject to the conditions prescribed by the laws of said State as provided in section 15 of article XII of the constitution thereof.

And these defendants, further answering, say that in November, 1886, the complainant commenced the construction of its said reservoir to impound and store said water, and thereafter prosecuted work upon the same and upon its said system of main and lateral pipes for furnishing said water to consumers, and in February, 1888, began its water service under its said system.

They admit that the complainant's main reservoir is and was at the times in the complaint mentioned situate in said Sweetwater river about five miles distant from the defendant The City of National City, and they say that the amount of water annually yielded by said stream under said appropriation is more than sufficient to fill said reservoir, and that the same is its only reservoir.

They admit that said system of reservoir—mains, flumes, aqueducts, and pipes—covers and can supply a territory consisting of certain farming lands, some within and others outside of said National City, and of the resident portion of said city of National City.

And, further answering, the defendants say that the entire quantity of farming and orchard lands within and without said city of National City lying under the flowage of said reservoir and which can be irrigated therefrom is about fifteen thousand acres, and that the capacity of said reservoir is sufficient to supply water needed for irrigation of said fifteen thousand acres,

and also for the domestic and other uses and needs of a population when settled upon said lands and in said city of National City of at least 20,000 persons.

And these defendants, further answering, say that of said 15,000 acres of farming and orchard lands lying under the said reservoir and irrigable therefrom the complainant in January, 1887, owned and held for the purposes of sale, use, and profit about twelve thousand acres.

And these defendants, further answering, say that of said farming and orchard lands irrigable from said reservoir the complainant's present system of mains and laterals is of capacity sufficient to supply and is capable of supplying ten thousand acres with water for irrigation thereof, and also to supply a population of 20,000 people when settled thereon and in said city of National City with water for domestic and other purposes.

And these defendants, further answering, say that of said last-mentioned ten thousand acres about eight thousand were owned by complainant and held for sale, use, and profit by it in January, 1887.

And these defendants, further answering, say that the portion of the territory of said city of National City laid out into town lots in January, 1887, comprised six thousand six hundred and
23 forty-four lots, of which complainant then owned forty-two hundred.

These defendants admit that the complainant has, in making appropriation of the water and water rights and in the construction of its reservoir and distributing system owned by it as aforesaid and in preparing itself to supply consumers with water, expended, up to January 1st, 1895, a considerable sum of money; and, further answering, they say that they know not and have not been informed, save by the said complainant's said bill, whether the sum of \$1,022,473.54 or how much of said sum has been so expended.

And these defendants deny that said sum of \$1,022,473.54 or any sum in excess of \$600,000.00 thereof was reasonably necessary to be expended for said purposes.

And these defendants aver on information and belief that said reservoir and distributing system can be constructed and duplicated for an amount not exceeding \$600,000.00.

These defendants admit that by the expenditure of its moneys complainant has appropriated said water and water rights and has procured said reservoir site and said reservoir, of about the capacity of six thousand million gallons of water, and has constructed and laid therefrom its water mains necessary to supply said defendant, The City of National City, and the country between its said source of supply and said city with water and has constructed and put in mains, pipes, and all other things necessary to connect said water supply with the premises and buildings of said city and its inhabitants and furnish them with water, and was at the times in said
24 bill of complaint mentioned furnishing said city and its inhabitants with water; and defendants state that within the limits of said city of National City complainant has laid

its mains and pipes in the public streets of said city under and pursuant to a franchise granted to complainant by said city in February, 1888.

They deny that complainant was at the times in the bill of complaint mentioned or is now furnishing more than a part of the inhabitants of said city with water.

And, further answering, these defendants say that from and since the month of December, 1892, the complainant has declined and refused to furnish water for irrigating any lands within said city of National City not then actually under irrigation with water from its said system, except a certain tract of two acres for which complainant charged and received \$50.00 per acre, under its rule established as hereinafter stated, besides the annual rate of \$3.50 per acre for irrigation, under the several ordinances of said city fixing annual rates for water supplied for irrigating purposes.

And, further answering, these defendants say that the number of acres of land within said city of National City irrigable from said system and not under irrigation in December, 1894, was 2,918 acres, and of city lots not under irrigation at said date there were about 4,500, and that the number of acres of said unirrigated land for which water was desired by the owners and for which said owners were ready and willing to pay the ordinance rates was, to wit, about 300 acres, and that the number of lots for which water for irrigation was desired by the owners and for which said owners were ready and willing to pay the ordinance rates was about 100.

They deny that the annual expense of operating and keeping in repair complainant's said reservoir and water system and of furnishing its consumers with water exceeds or reasonably costs more than eight thousand dollars (\$8,000.00).

And these defendants, further answering, say that the expense of operating and keeping in repair complainant's said mains, pipes, and distributing system is largely and, as defendants are informed and believe, at least one-half increased by reason of a large amount of exceedingly weak and defective pipes, improvidently and negligently laid by it in its said system, a large portion of which had to be replaced.

And they deny that complainant issued any bonds to aid the construction of its said water system, and deny that the proceeds of any bonds by it issued were devoted to the construction of said system.

These defendants, further answering, say that they know not and have not been informed, save by the said complainant's said bill, whether the cost of putting in its said distributing system within said city alone and not including the cost incurred by it outside of the limits of said city amounted, up to the time of the passage of the ordinance in the said bill of complaint mentioned, to the sum of one hundred sixty-one thousand six hundred and sixty-six and $\frac{1}{100}$ dollars (\$161,666.40), and they do not know what part of said sum of \$161,666.40 has been expended by complainant in that behalf, but aver that according to their information and belief the reasonable cost of said portion of said system was not to ex-

ceed \$75,000.00, and that its present value does not exceed \$50,000.00.

And these defendants, further answering, say that a great portion of the sum actually expended by complainant for its distributing system within said city was improvidently and unnecessarily expended to reach said 4,200 vacant lots owned by complainant in January, 1887, and held by it for the purpose of speculation and sale, and located in uninhabited or very sparsely settled portions of said National City.

These defendants deny that in order to pay complainant the amount of its proper and reasonable annual expenses and any income to which it may be entitled on any portion of the amount actually invested in its said water system at the date of the passage of said ordinance it is necessary or proper that such rates for water sold and consumed be so fixed as to realize to the said complainant the sum of \$119,791.66 per annum or any sum greater than the sum of about \$8,000.00.

And they deny that complainant is entitled to any rate of net income on the whole amount actually invested in the said water system; and they deny that a proper or reasonable basis to be taken by the board of trustees of said city of National City for the purpose of fixing water rates for any lands now under irrigation is such a basis as will make said lands contribute to an estimated net revenue of six per cent. per annum on the whole or any of the amount actually invested by complainant in its said water system, or on the whole or any part of the cost of said system, or on the whole
27 or any part of the value of said system.

And, further answering, these defendants say that the lands of complainant, as hereinbefore stated, irrigable from complainant's said reservoir and distributing system, as so constructed, are situate in the Sweetwater valley, in Chula Vista, and in National City, all within the boundaries of National ranch, in said county of San Diego; also in Otay valley, in said county, adjoining said National ranch on the south, and in the territory known as Ex-Mission lands, adjacent to National City on the north, and that said lands, together with the said town lots owned by complainant, as aforesaid, form virtually one continuous tract extending from near the base of the Sweetwater reservoir westward to the bay of San Diego, and from the Otay valley on the south to the municipal boundaries of the city of San Diego on the north and west thereof.

And defendants, further answering, say that the lands and lots of others than complainant, under the said system, are in detached parcels, scattered among the said lands and lots of the complainant.

And defendants further say that said lands of complainant were in January, 1887, entirely unsettled and in their wild and natural state and were almost entirely arid and of but little value without water for irrigation, and that said city lots so owned by complainant were at said date vacant and unimproved and of little value, except in anticipation of the settlement of said lands under said
28 water system and of the anticipated growth of the population

of said city of National City.

That said lands belonging to others than complainant

were also at said date largely unsettled and in their wild and natural state and were of the same general character with those of complainant, and that said lots belonging to others than complainant were at said date largely vacant.

That complainant, being desirous of finding sale for its said land and lots and to take advantage of the speculative conditions prevailing in southern California from the summer of 1886 and onward, made the appropriation of the water of the Sweetwater river as aforesaid, and planned and executed the construction of said reservoir and pipe system at an excessive cost for labor and material to the extent of one-fourth, primarily to serve and supply water to its own lands and lots aforesaid and to the inhabitants who by promise of said water should be induced to purchase and settle on said lands and lots, and that such water system was constructed to serve incidentally only the lands of others than complainant.

And these defendants further state that in part execution of the said project complainant laid out and platted its tract of land known as Chula Vista, which consisted of about five thousand acres, in blocks of forty acres each, and bounded each such block by avenues and streets and subdivided said blocks into lots of five acres each and laid pipes through seven avenues therein, each about three miles in length, and separated from each other one-fourth of a mile, and also piped said Chula Vista at right angles with
 29 said avenues at the distance of every mile in the streets crossing said avenues, and that by said means complainant's said distributing system was made sufficient to reach and serve with water each five-acre lot on said Chula Vista tract, and that in further execution of said project complainant laid pipes in the streets of National City, so placed as to reach its said vacant lots, as well as any inhabited lots along its line of pipes so placed, and also to reach its farming lands lying within said city of National City, and extended pipes from its said system through said National City to serve and irrigate 350 acres of land outside and to the northward of the same, and that in still further execution of said project the said complainant laid pipes in the Sweetwater valley and elsewhere in National ranch, in the Otay valley, and in the tract known as Ex-Mission, to reach and within reach of its lands there situated.

And, further answering, these defendants say that nine-tenths of the complainant's distributing pipe system aforesaid, when laid and ready for operation in February, 1888, was so laid in anticipation of future use and demand for water supply, and not for any use or demand then existing.

And defendants further state that the demand and actual use of its said water supply and system as at present operated and constructed does not extend to more than one-fourth of the farming land and to less than one eighth of the city lots over which said distributing system is spread, and that such demand and actual
 30 use does not consume more than one-third of the water capable of being delivered by said pipes, nor is such use and consumption for domestic and general purposes more

than one-eighth of what may be supplied by said system as planned and now constructed, and that the population under said system does not exceed twenty-five hundred or approximately one-eighth of the population which said system was planned and is adapted to supply.

And, further answering, defendants say that from the time of complainant's entering upon the enterprise of constructing said water system it had at all times advertised and held its said farming and orchard lands and its said National City lots for sale, and has and does, as an inducement to the purchase thereof, represent that the water of its said system is piped to and over said lands and lots, and until on or about December, 1892, would be supplied to purchasers thereof in abundance for irrigating the same at the rates of \$3.50 per acre per annum for farming and orchard lands and for said lots in ample quantities and at cheap rates; and from December, 1892, until February, 1895, complainant demanded from consumers other than those to whom it had sold lands, and also those holding lands to whom it had furnished water prior to December, 1892, \$50.00 per acre for water furnished for irrigation purposes for a so-called "water right," and since last said date it has demanded from such consumers for water furnished for such purposes \$100.00 per acre for a so-called "water right."

And, further answering, these defendants say that the said complainant since the early portion of the year 1887 has at all times kept its said lots and from said date down to May, 1892, and 31 from October, 1892, to the present time has kept and still keeps its said lands continuously on the market for sale, with and under said representations as to water supply.

And, further answering, defendants say that complainant's lands situate in the Sweetwater valley, in the Otay valley, and in the "Ex-Mission," consisting of about 5,700 acres, without the appurtenant water supply under said system, have at no time been worth more than an average of fifty dollars per acre, and that its lands in Chula Vista, comprising about five thousand acres, as aforesaid, so laid out and platted, without the appurtenant water supply under said system, have at no time been worth more, but rather less, than an average of \$50.00 per acre, and that its lands other than town lots situated within said city of National City, comprising 1,289½ acres, without the appurtenant water supply under said system, have at no time been worth more, but rather less, than an average of \$100.00 per acre, and that the complainant's said town lots situate in said city, without water supply under said system, were of merely nominal value; that by reason of said appurtenant water supply the complainant regarded and treated the value of said lands and lots as proportionately enhanced, and that accordingly it has at all times since early in the year 1887 held its raw lands, including the annexed easement of water supply in said Sweetwater valley, in said Otay valley, and in said Ex-Mission, at an average price of \$250.00 per acre, and has at all times held its raw lands in Chula Vista, with the said annexed easement of water supply, at

32 prices running from \$300.00 to \$400.00 per acre, and has at all times held its lands other than town lots within said city of National City, together with the easement of water supply annexed, at from \$350.00 to \$500.00 per acre, and has held its improved lands on the same basis of valuation for the land and water, aside from improvements, and has held and still holds its town lots in said city of National City in an unimproved state at a valuation in the aggregate of about one million four hundred seventy thousand dollars.

And these defendants, further answering, say that at said prices said complainant had up to the date of the passage of this ordinance sold, as defendants are informed and believe, about 3,000 acres of said irrigated land, with the easement of water supply annexed as an incident to the grant of land; that it has planted and improved other considerable tracts, aggregating about 1,000 acres, and has used and is using such appurtenant water supply thereon with a view to the sale and use of the same, and that it retains the remainder of its said lands at valuations not lower than as hereinbefore stated for the raw land and the incident and easement of water supply annexed, and has refused and at all times refuses to dispose of the same without including said water supply or to dispose of the same including said water supply except on the condition that purchasers would pay to complainant the price for such lands as so fixed by it, and that of the four thousand two hundred lots within the city of National City owned by it in January, 1887, so defendants are informed and believe, it has disposed of not less than 33 five hundred and twelve at prices very greatly enhanced by reason of its said water supply, and it holds the remainder of said lots at the valuation aforesaid of about one million four hundred seventy thousand dollars.

And these defendants, further answering, say that in all cases where it has disposed of any of its lands under said system it has actually furnished and is now supplying and stands ready to furnish and supply the same with water from its said system at the rate by it advertised and voluntarily adopted and enforced of \$3.50 per acre per annum, and that to all consumers within and without the city of National City it has for more than five years regulated and does regulate charges according to schedules contained in the ordinances of the said city of National City as by it enacted and passed during the respective years 1888, 1889, 1890, 1891, 1892, 1893, and 1894, but, as defendants are informed and believe, said complainant threatens to charge, on and after July 1st, 1895, at the rate of \$7.00 per acre for water furnished for irrigation.

That by reason of the said premises the complainant has appropriated to the lands held by it in January, 1887, four-fifths of the whole water-furnishing capacity of its reservoir, as is commensurate with four-fifths of the capacity of said distributing system, leaving a large surplus of its reservoir capacity, to wit, about one-third of the whole, which it proposes to use for irrigating its lands which cannot be supplied by its said distributing system as now constructed.

34 Further answering, defendants say that all water furnished by complainant to consumers for the irrigation of land was and is being furnished under and subject to the provisions of section 552 of the Civil Code of the State of California.

These defendants, further answering, say that up to December, 1892, said complainant made no express grant of "water rights," but granted the easement of the flow and use of water from its said system as an incident to its grants of its own land, and that up to February 25th, 1893, complainant had voluntarily annexed the easement of the flow and use of water for irrigation from its said system to about 1,000 acres of land purchased from it, of which about 500 acres are situated within the said city of National City and 500 acres without.

And these defendants further say that in all cases where complainant supplied water to lands, as aforesaid, not purchased from it up to December, 1892, it voluntarily parted with and annexed the easement of the flow and use of such water to such land, and that in respect to all such lands it voluntarily and advisedly and by its public acts, representations, and continued practice renounced all discrimination as to annual rates charged and collected and to be charged and collected by it for irrigation and all other purposes between such lands and the lands sold by it as aforesaid.

And defendants further say that large portions of the lands other than those originally owned by it, to which it annexed the
35 easement of water supply, as aforesaid, have, under the representations and public acts and practice of complainant, changed ownership at the added valuation of the easement so voluntarily annexed by complainant, and at all times complainant has treated the same upon precisely the same footing with the lands sold by it as to the annual rates for irrigation, charging the uniform rate of \$3.50 per acre for all purposes for irrigation.

And defendants, further answering, say that in the month of December, 1892, the complainant, for the first time, adopted the policy of granting express and formal "water rights" as perpetual easements with the lands thereafter sold by it and to other lands under the system not owned by complainant and not then under irrigation therefrom, and fixed the price of such "water right" to persons not purchasing of complainant at the sum of \$50.00 per acre, and that from December, 1892, to February, 1895, the complainant has not furnished water for irrigation to any land within the city of National City to which it had not, prior to December, 1892, voluntarily annexed the easement of such perpetual flow and use of water, except when payment of \$50.00 per acre for the said water right was made and secured, and since February, 1895, it has demanded \$100.00 per acre for water for irrigation of last-described lands.

These defendants further say that they know not and have not been informed save by said complainant's said bill what amount has been realized by the complainant from sales of water or from
36 sales of water rights or from all other sources on account of its business of supplying water to consumers from its said system outside of the said city of National City for the year

ending July 1st, 1894, but that they have no reason to believe that the receipts from all of said sources outside of the said city for the year ending July 1st, 1895, *was* only about \$15,000.00, as stated by complainant, and deny that probably no more than that sum can be realized for the year ending July 1st, 1896.

These defendants admit that all the mains and pipes of complainant and other parts of its property so used in furnishing water to consumers are to some degree perishable and require frequent repairs.

And as to whether they require to be replaced once in sixteen years these defendants do not know and are not informed.

And these defendants, further answering, say that the repairs of its mains and pipes are much more frequently necessary and the cost thereof more by one-half than is reasonable for a system of the kind and extent, because a great portion of the pipe used and laid was exceedingly inferior in quality and was not adapted to the duty required of the same.

They deny that in order to appropriate said water and water rights and construct its said system of water works complainant was compelled to borrow \$300,000.00 or any less sum, and deny that the \$21,000.00 interest on said \$300,000 is to any extent a part of complainant's operating expenses.

They deny that the proportionate share of the resources of complainant that should be raised by water rates within the
37 limits of said National City, as compared with the revenues that should be raised and paid as water rates by consumers outside of said city, is one-half or any greater than one-fifth.

And, further answering, these defendants say that, as they are informed and believe, the amount of water delivered and used in said city of National City for all purposes is not to exceed one-fifth of the whole amount of water distributed and furnished by complainant under the said system.

These defendants, further answering, say that they know not and have not been informed save by the complainant's said complaint what amount can be realized within said city of National City from the rates fixed by the ordinance in the complaint set forth, but have no reason to believe that such amount will fall below the sum of \$10,715.00, stated in said complaint.

And, further answering, these defendants show as the reason they have not more or greater knowledge upon said subject that these defendants have no means of accurate or approximate information on the subject, except such as is contained in the records and accounts kept by complainant and in its exclusive custody and control; that these individual defendants, in their organized capacity as the board of trustees of said city of National City, did, on December 6th, 1894, in advance of the passage of the ordinance in the complaint set forth, pass and cause to be communicated to complainant the resolution in words and figures as follows:

38 Resolved by the board of trustees of the city of National City, State of California, That the San Diego Land & Town Co., a corporation engaged in supplying water to the said city of

National City and the inhabitants thereof, be and the same is hereby required to furnish to the board of trustees of said city, in the month of January, 1895, a detailed statement, verified by the oath of the president and secretary of such corporation, showing the name of the water-rate payer, his or her place of residence and the amount paid for water by each of such water-rate payers during the year preceding the date of such statement, and an itemized statement of expenditures made for supplying water during said time, also to accompany such statement with a detailed statement, verified in like manner by the oath of the president and secretary of such corporation, showing the amount of money actually expended annually since commencing business, in the purchase, construction and maintenance respectively, of the property necessary to the carrying on of its business, and also the gross cash receipts annually for the same period from all sources.

That the clerk of this board be, and he is hereby directed to transmit a copy of this resolution to the said San Diego Land & Town Company.

39 That in respect to said request the complainant failed and neglected to render the statement so called for until after said ordinance # 118 was actually passed, adopted, and approved; but defendants say that while said ordinance was being considered upon its final passage before said board of trustees of said city, to wit, on February 20th, 1895, the complainant handed in and placed before said board of trustees an unverified statement, purporting to be a statement under said act of the State of California approved March 7th, 1881, and that upon the receipt of such document the said board immediately adjourned to enable its water committee to examine, and they did fairly and carefully examine and report upon said document and recommend the passage of said ordinance # 118 without any change being made therein.

And that thereafter, to wit, on the 20th day of March, 1895, complainant withdrew said unverified document and substituted therefor a verified statement, which said statement is now on file with said board of trustees.

They deny that the value of the appropriations of water and water rights, reservoir, franchises, and property necessary for the proper operation of its business and now owned by complainant is \$1,100,000.00, and they deny that the whole of the said system is necessary for the use of the complainant in furnishing water exclusively to said city and its inhabitants.

40 And these defendants say that, as they are informed and believe, the just and reasonable valuation of the whole water system as built by complainant, including the appropriation of water and water rights, reservoir, distributing system, and all the appurtenances, is not in excess of \$600,000.00.

They admit that no other person or corporation is or ever has been furnishing a supply of water to said city, nor is there now nor has there been any other system of water works by which said city or its inhabitants can be furnished with water, and that the fran-

chise and right of the complainant to furnish water to said city and its inhabitants is not exclusive of other persons or corporations.

They admit that the defendant The City of National City is a municipal corporation of the sixth class, organized under the general laws of the State of California, and that the defendants John G. Routson, George W. Deford, S. D. Johnston, J. H. Kincaid, and Fred H. Samborn were at the times mentioned in said bill of complaint and still are the duly elected, qualified, and acting trustees, and composed and still compose the board of trustees and law-making power of said city of National City; and they say that said city is the only organized municipality within the territory covered by complainant's said system.

They admit that on the 20th day of February, 1895, the said
41 board of trustees, assuming and claiming to act under and in accordance with the constitution and laws of the State of California, passed and adopted the ordinance, in the complaint set forth, fixing the water rates to be charged for water furnished by the complainant to consumers within said city, which said ordinance is in words and figures as in the bill of complaint set forth, and that the same was duly published as provided by law.

They deny that no notice of the fixing of said water rates was ever given. They deny that no opportunity to be heard in the fixing of said water rates was given.

They deny that not any time was fixed or place was fixed by notice or otherwise when any hearing upon the matter of fixing said rates would be had or given.

They deny that there is no provision in the constitution or laws of the State of California under or by virtue of which said board of trustees acted in fixing said water rates and in adopting said ordinance, or that there is no law of said State providing or authorizing any notice of the time or place of any hearing on the matter of fixing water rates or providing for or authorizing any hearing thereon or giving any person or corporation an opportunity to be heard upon the question of the fixing of water rates.

Further answering, these defendants say that by article XIV, sec. 1, of the constitution of the State of California it is ordained in that behalf as follows:

"Provided that the rates or compensation to be collected by any
42 person, company or corporation in this State, for the use of water supplied to any city and county, or city or town, or the inhabitants thereof, shall be fixed, annually, by the board of supervisors, or city and county, or city or town council, or other governing body of such city and county or city or town, by ordinance or otherwise, in the manner that other ordinances or legislative acts or resolutions are passed by such body, and shall continue in force for one year and no longer. Such ordinances or resolutions shall be passed in the month of February of each year, and take effect on the first day of July thereafter."

That among the laws of the State of California in force at all times mentioned in the bill of complaint are the provisions of the act approved March 13th, 1883, entitled "An act to provide for the

organization, incorporation, and government of municipal corporations ' as follows:

"SEC. 858. The board of trustees shall meet on the Monday next succeeding the date of said general municipal election, shall take the oath of office, shall choose one of their number president, and shall hold regular meetings at least once in each month, at such times as they shall fix by ordinance. * * * All meetings of the board of trustees shall be held within the corporate limits of said city, at such place as shall be designated by ordinance, and shall be public."

SEC. 861. "No ordinance, and no resolution granting any franchise for any purpose, shall be passed by the board of trustees on the day of its introduction, nor within five days thereafter, nor at any other than a regular meeting. * * * And no such
43 ordinance, resolution or order shall have any validity or effect unless passed by the votes of at least three trustees."

SEC. 865. "The enacting clause of all ordinances shall be as follows: 'The board of trustees of the city (or town) of — do ordain as follows: ' Every ordinance shall be signed by the president of the board of trustees, attested by the clerk, and published at least once in a newspaper published in said city or town, or printed and posted in at least three public places therein."

That pursuant to said statutes the board of trustees of said city of National City, on the 21st day of October, 1893, duly passed and thereafter duly published in the National City Record, a newspaper published in said city, the ordinance as follows:

"Ordinance 94.

An ordinance fixing the time and place of the meeting of the board of trustees of National City, California.

The board of trustees of National City, California, do ordain as follows:

SECTION 1. The regular meeting of the board of trustees of National City, California, shall be held on the 1st and 3rd Wednesdays of each month, at 2.30 p. m., in the city hall, located on lot 13 block 208 in said city.

SECTION 2. All ordinances heretofore passed fixing time and place of meeting of said board, are hereby repealed.

SECTION 3. This ordinance shall take effect and be in force
44 from and after its passage and publication of same, as required by law.

Passed, approved and ordered published one week in the National City Record, this 21st day of October, 1891, by the following vote:

O. E. M. Howard, absent.

F. D. Vaughn, yes.

Jos. H. Kincaid, yes.

Geo. W. Deford, yes.

John G. Routson, yes.

O. E. M. HOWARD,
Pres. pro Tem. of the Board of Trustees."

And that said ordinance was in full force and effect during all the times mentioned in the complaint.

That said ordinance fixing water rates was introduced at the regular meeting of said board of trustees held on the 6th day of February, 1895, and that the question of its passage was laid over, under the rule provided by said statute, to the next regular meeting held on the 20th day of February, 1895.

And by reason of the premises these defendants say that ample notice of the time and place of the introduction, pendency, and consideration of said ordinance was given to all persons and corporations and their representatives.

And these defendants further say that all persons, including the complainant, were given, at said times and places, full and
45 ample opportunity to be heard in the matter of fixing the water rates under said ordinance while the same was pending.

These defendants deny that said water rates were fixed by said board of trustees arbitrarily or without notice to complainant, or without fully hearing the complainant with respect thereto, or without taking of evidence with reference thereto.

And these defendants, further answering, say that said ordinance # 118 is substantially the same as the ordinance of said city, to wit, # 112, approved February 28th, 1894, which is now in force in said city, except that the rates for irrigation are divided into two classes by said ordinance # 112.

And these defendants, further answering, say that said ordinance # 112 at present in force, in substantially its present form in respect to all rates fixed therein and thereby, was originally furnished by complainant, and its passage by the board of trustees of said city requested by complainant in February, 1888; that at the request and with the full approbation of complainant it was passed from year to year until in February, 1891, when at the request of complainant the proviso to said subdivision twenty-second of section one of said ordinance was inserted in the words following, to wit: "Provided the maximum use of water shall not exceed 350,000 gallons per acre, and if in excess of the above amount proportionate rates shall be charged," in lieu of the provisions contained in former ordinances in the words and figures following, to wit: "and for

46 strawberries, alfalfa, and products requiring an equal amount of water per acre, at a rate not exceeding \$5.00 per acre," and that the other proviso in said section one of said ordinance # 112, classifying acre property for the purposes of irrigation into two classes, was for the first time for any year inserted in said ordinance # 112, and that said ordinance # 112 was passed with the approbation of complainant.

That prior to the passage of said ordinance, as in the bill of complaint set forth, and before the introduction thereof the matter of the preparation of said ordinance for introduction was referred to a committee of said board of trustees, consisting of said trustees, Routson, Johnston, and Samborn; that said committee held a conference with John E. Boal, Esq., the general manager of the complainant

corporation, who was and is the officer in charge of its interests in the State of California, and with C. D. Lanning, Esq., treasurer of complainant, representing the president of complainant, with respect to the terms of such ordinance to be introduced and passed in the month of February, 1895, by said board of trustees.

That on the 20th day of February, 1895, at a regular meeting of said board of trustees to consider the said ordinance, there were present the said general manager of complainant, said C. D. Lanning, Esq., and a number of citizens of said city of National City, and that there was then adopted an amendment to section 3, class 4, of said ordinance, raising the meter water rates for the irrigation of acre property from $1\frac{1}{2}$ cents per 1,000 gallons as originally proposed, to 2 cents per 1,000 gallons.

47 And these defendants, further answering, say that they heard and considered all the evidence offered by the complainant and all other persons bearing upon the matter of rates prescribed in said ordinance, and that they acted in good faith in the consideration of said ordinance as so proposed and the amendment thereto as proposed and carried.

And these defendants deny that the rates in said ordinance fixed are so low that the same are unreasonable or unjust; and they deny that at the rates so fixed the complainant cannot realize within the city of National City sufficient to pay the just proportion which said city and its inhabitants should contribute to the ordinary and necessary operating expenses of complainant's said system and as much more as said city and its inhabitants should justly and reasonably pay toward interest and profit on complainant's investment as the same existed when said ordinance was enacted.

And, further answering, these defendants say, as they are informed and believe, that under the annual rates as fixed by the ordinance set forth in said bill the income of complainant in said city will be about the same as that derived and being derived by it under ordinance #112, at present in force.

And these defendants deny that complainant can only supply all consumers within said city at the rates so fixed by it at a loss to it, and it denies that to compel it to furnish water at said rates is a practical or other confiscation of its property in whole or in part or a taking thereof in whole or in part without due process of law.

48 And these defendants admit that the said city of National City is composed in considerable part of a territory of farming lands devoted to the raising of fruits and other products, and that a part thereof is occupied by residences and business houses.

And they say that the population of said city was when said ordinance was adopted about 1,300 persons.

That the area within the boundaries of said city laid out in town lots is about eight hundred acres, divided as aforesaid into 6,644 lots, of which complainant, in January, 1887, owned 4,200 as aforesaid.

That the land within the boundaries of said city not laid off into

town lots comprises about 3,500 acres, of which complainant, in January, 1888, owned 1,289 $\frac{1}{2}$ acres.

That when said ordinance was passed complainant continued to own about 3,688 of said lots and about 1,184 acres of said land.

That the number of acres of farming land under irrigation in said city at the time when said ordinance was passed was about six hundred and ten.

These defendants admit that prior to the adoption of the ordinance in the complaint herein set forth the complainant, in order to meet in part the outlay by it in and about its water system, established a rate of \$100.00 per acre for a perpetual so-called "water right" for the purposes of irrigation, and requires the purchase and payment for such "water right" before extending its distributing system to lands not yet supplied with water,

49 which rate was made uniform and applicable alike to all lands to be furnished with water within and outside of said city, and that said payment for a water right has ever since been charged as a condition upon which alone water will be supplied to consumers for the purposes of irrigation; but defendants on information and belief deny that a number of or any consumers had prior to the adoption of said ordinance purchased said so-called "water rights" at said rate or paid therefor.

And these defendants say that since complainant established said rate of \$100.00 per acre for such "perpetual right for the purpose of irrigation" it has in no instance supplied water to any land not already under irrigation except on purchase of said "water right" and payment therefor.

That defendants on information and belief deny that the rate charged for said "water right" was or is reasonable or just or was or is necessary to enable complainant to keep up and extend its water system, so as to supply water to consumers who require and need the same, or that without the payment of such rates it cannot operate or extend its plant so as to render it available and beneficial to all water-consumers that could, with the necessary expenditure, be supplied from said system.

They admit that the lands covered by complainant's system are arid and of but little value without water, and that a right to the use of water from complainant's system by consumers increases the land in value more than three times the original value of the land without water and is of great value to the landowner.

They admit that said ordinance fixes the annual rates for the use of water furnished for irrigation at \$4.00 per acre per annum, and aver that said ordinance further provides for a rate of \$7.00 per acre per annum for the irrigation of nurseries and vegetable gardens, and a meter rate for the irrigation of acre property of 2 cents per 1,000 gallons.

And they deny that said rates were fixed without taking into account any existing "water rights."

They admit that said ordinance made no provision for allowing charges for "water rights."

And, further answering, these defendants say that the laws of the State of California have not conferred upon said city or its said board of trustees the power to prescribe by ordinance or otherwise that the purchase and payment for such so-called "water rights" should be a condition to the exercise of the right of consumers to the use of any water appropriated for irrigation, as hereinbefore stated, or of any water supply affected with the public use.

And these defendants deny that \$4.00 per acre per annum is unreasonably low.

They deny that such rate requires the complainant to furnish water to consumers within the limits of said city for the purpose of irrigation for less than it furnishes the same to consumers outside of the city for the same purposes, or so low that it cannot furnish the same without positive or other loss to itself.

And, further answering, these defendants say that out of the gross income and net income said city of National City and its inhabitants have contributed two-fifths, although the proportion of water consumed for irrigation within the boundaries of said city is not to exceed one-fifth of the total amount used inside and outside of the same, and although the population of said city of National City is not to exceed one-half of that under said system, and the consumption of water for domestic and other purposes, other than irrigation, within said city does not exceed that used under said system outside of said city.

These defendants admit that, as they are informed and believe, some persons, but how many they know not and are not informed, residing within said city and owning lands therein are desiring to irrigate the same, and are demanding that their lands may be connected with the complainant's said water system, and that their lands be supplied with water therefrom at the said rate of \$4.00 per acre per annum, and without any payment for a "water right."

They admit that under the laws of the State of California if water is once furnished to said parties they obtain a perpetual right to the use of water on their said lands without payment for such water right.

And, further answering, these defendants say that up to December, 1892, complainant by its public representations and continuous practice voluntarily conferred and annexed such perpetual rights to the use of water on the lands of all such persons who requested the same without payment of any consideration therefor, except the annual rate of \$3.50 per acre adopted by it under its entire system within and without said city, in addition to charges made for tap connections with its pipe, ranging from \$12.00 to \$50.00 for each such tap connection.

That in December, 1892, it changed its rule and practice, and from that time on until February, 1895, charged and exacted the payment as and for a so called "water right" of \$50.00 per acre and from said last said date to the present time \$100.00 per acre for the privilege of connecting with its said system any lands not then already under irrigation from it.

And that since December, 1892, complainant has at all times declined and refused to connect and has not in fact connected any lands with its irrigating system except upon payment made to it of such rates of \$50.00 and \$100.00 per acre respectively for the "water right."

And these defendants deny that until the validity of said ordinance is determined the complainant cannot collect fair and reasonable rates for water furnished.

That whether complainant can or cannot safely charge for such water rights has been in no way committed to said board of trustees to determine by the laws of the State of California.

And defendants deny upon information and belief that
53 if said ordinance # 118 is enforced complainant will be damaged in the sum of \$20,000.00 or any other sum.

And these defendants further say that not any other matter, cause, or thing in the said complaint contained material or necessary for these defendants to make answer unto and not herein and hereby well and sufficiently answered, confessed, traversed, and avoided or denied is true to the knowledge or belief of these defendants; all which matters and things these defendants are ready and willing to aver, maintain, and prove as this honorable court shall direct, and humbly pray to be hence dismissed with their reasonable costs and charges in this behalf most wrongfully sustained.

THE CITY OF NATIONAL CITY, *Defendant*,
By JOHN G. ROUTSON,
President of Board of Trustees of National City.

Attest: H. A. HARBAUGH,
[SEAL.] *City Clerk.*

GIBSON & TITUS,
Solicitors for Defendants, and
T. R. PALMER,
City Attorney of said National City.

54 UNITED STATES OF AMERICA, } ss:
Southern District of California,

We, John G. Routson, George W. Deford, S. S. Johnston, J. H. Kincaid, and Fred H. Samborn, defendants, as trustees of the city of National City, in the above-entitled cause, having read the foregoing answer and being each duly sworn, do say that the matters and things in said answer contained are true except as to those matters therein stated upon information and belief, and as to those matters we believe them to be true.

JOHN G. ROUTSON.
GEORGE W. DEFORD.
S. S. JOHNSTON.
FRED H. SAMBORN.

Subscribed and sworn to before me this 24th day of June, 1895.

[SEAL.]

THEODORIC R. PALMER,
Notary Public in and for the County of
San Diego, State of California.

(Endorsed :) No. 648. In the circuit court of the United States, ninth circuit, southern district of California. The San Diego Land & Town Company vs. The City of National City *et al.* Answer. Received copy of the within this 26th day of June, 1895. Works & Works, att'y's for complainant. Filed Jun- 27, 1895. Wm. M. Van Dyke, clerk. Gibson & Titus, San Diego, California, attorneys for defendants.

55 In the Circuit Court of the United States, Ninth Circuit, Southern District of California.

THE SAN DIEGO LAND AND TOWN COM-
pany, a Corporation, Complainant,

vs.

THE CITY OF NATIONAL CITY, a Municipi-
pal Corporation, and John G. Routson,
George W. Deford, S. S. Johnston, J. H.
Kincaid, and Fred H. Samborn, Trustees
of said City, Defendants.

No. — Replication.

*The Replication of The San Diego Land & Town Company, Complain-t,
to the Answer of The City of National City et al., Defendants.*

This repliant (saving and reserving to itself all and all manner of advantage of exception which may be had and taken to the manifold errors, uncertainties, and insufficiencies of the answer of the said defendants for replication thereunto) saith that it doth and will aver, maintain, and prove its said bill to be true, certain, and sufficient in the law to be answered unto by the said defendants, and that the answer of the said defendants is very uncertain, evasive, and insufficient in the law to be replied unto by this repliant; without that, that any other matter or thing in the said answer contained

56 materially or effectually in the law to be replied unto and not herein and hereby well and sufficiently replied unto and confessed or avoided, traversed or denied, is true; all which matters and things this repliant is ready to aver, maintain, and prove as this honorable court shall direct, and humbly prays as in and by its said bill it hath already prayed.

WORKS & WORKS,
Solicitors for Complainant.

(Endorsed :) No. 648. U. S. circuit court, ninth circuit, southern district of California. San Diego Land & Town Co., complainant, vs. City of National City *et al.*, defendants. Replication. Received copy of the within July 10, 1895. Gibson & Titus, att's for defendants. Filed Jul- 11, 1895. Wm. M. Van Dyke, clerk. Works & Works, attorneys for complainant.

57 UNITED STATES OF AMERICA :

Circuit Court of the United States, Ninth Judicial Circuit, Southern District of California.

THE SAN DIEGO LAND AND TOWN COMPANY,
a Corporation, Complainant,

vs.

THE CITY OF NATIONAL CITY, a Municipal Corporation, and John G. Routson, George W. Deford, S. S. Johnston, J. H. Kincaid, and Fred H. Samborn, Trustees of said City, Defendants.

In Equity. No. 648.
Decree.

This cause having heretofore been brought to a hearing upon the pleadings and proofs and having been argued by counsel for the respective parties and submitted to the court for its consideration and decision, and thereupon, upon consideration thereof, the court on the 4th day of May, 1896, having delivered its opinion thereon, now, therefore, in pursuance thereof—

It is ordered, adjudged, and decreed that the complainant's bill herein be, and the same is hereby, dismissed; and it is further ordered, adjudged, and decreed that the defendants recover of and from the complainant their costs and disbursement expended herein, taxed at \$311.17.

Dated at Los Angeles, May 21st, 1896.

ROSS,
Circuit Judge.

Decree entered and recorded May 21st, 1896.

WM. M. VAN DYKE, Clerk.

58 (Endorsed:) No. 648. U. S. circuit court, ninth circuit, southern district of California. The San Diego Land and Town Company v. The City of National City, a municipal corporation, et al. Decree. Filed May 21, 1896. Wm. M. Van Dyke, clerk.

59 In the Circuit Court of the United States, Ninth Judicial Circuit, Southern District of California.

THE SAN DIEGO LAND AND TOWN COMPANY, a Corporation,
Complainant,

vs.

THE CITY OF NATIONAL CITY, a Municipal Corporation, and John G. Routson, George W. Deford, S. S. Johnston, J. H. Kincaid, and Fred H. Samborn, Trustees of said City, Defendants.

No. 648.

The complainant filed its bill of complaint hereon on the 20th day of April, 1895, which is hereto annexed.

A subpoena to appear and answer in said cause was thereafter, on the 23rd day of April, 1895, issued, returnable on the 3rd day of June, 1895, which is hereto annexed.

On the 3rd day of June, 1895, the defendants appeared herein, by Messrs. Gibson & Titus, their solicitors.

On the 27th day of June, 1895, the answer of defendants to complainant's bill of complaint was herein filed, and is hereto annexed.

On the 11th day of July, 1895, the replication of complainant to the answer of defendant was filed herein, and is hereto annexed.

Testimony was thereafter taken by the respective parties and filed in the clerk's office of said circuit court.

On the 5th day of November, 1895, being a day in the August term, A. D. 1895, of said circuit court—present, the Honorable Erskine M. Ross, circuit judge—said cause came on for
60 hearing before the court upon the pleadings and proofs filed therein, and said cause was thereupon submitted to the court for its consideration and decision upon said pleadings and proofs and upon briefs which were thereafter filed by counsel for the respective parties.

On the 4th day of May, 1896, the court made and entered an order herein that complainant's bill of complaint be dismissed at complainant's cost.

On the 21st day of May, 1896, a final decree in accordance with the terms of said order was signed, filed, entered, and recorded herein, and is hereto annexed.

61 Whereupon said bill of complaint, subpoena, answer, replication, and final decree are hereto annexed, said final decree being duly signed, filed, and enrolled, pursuant to the practice of said circuit court.

Attest, etc.,

[SEAL.]

WM. M. VAN DYKE, Clerk.

(Endorsed:) No. 648. In the circuit court of the United States, ninth judicial circuit, for the southern district of California. The San Diego Land and Town Company vs. The City of National City, a municipal corporation, *et al.* Enrolled papers. Filed May 21st, 1896. Wm. M. Van Dyke, clerk. Recorded, Decree Register Book No. 2, page 86.

62 In the Circuit Court of the United States, Ninth Circuit, Southern District of California.

THE SAN DIEGO LAND AND TOWN COMPANY, a Corporation, Com-	}
plainant,	
vs.	
THE CITY OF NATIONAL CITY ET ALS, Defendants.	

The municipality known as "the city of National City" having, through its board of trustees, established by ordinance the rates at which the complainant corporation should furnish the city and its inhabitants with water for domestic purposes and purposes of irrigation for the year commencing July 1, 1895, and ending July 1, 1896, the complainant commenced this suit for the purpose of obtaining

a decree of this court adjudging that the provisions of the constitution and laws of the State of California, pursuant to which the proceedings by the board of trustees of the defendant corporation fixing the rates were had, be declared to be in violation of the fourteenth amendment to the Constitution of the United States, and that the rates so established be on that ground annulled; or, in the event the court shall determine that the provisions of the constitution and laws of the State of California do not contravene the Constitution of the United States, then that the rates fixed by the board of trustees of the defendant corporation be decreed to be arbitrary, unreasonable, and unjust, and for that reason void, and their enforcement enjoined, and that the board of trustees be ordered and required to adopt a new and reasonable rate of charge, and that it be decreed that the complainant corporation is entitled to charge and collect for "water rights" at reasonable rates, as a condition upon which it will furnish water to the inhabitants of the municipality for the purposes of irrigation, independent of the rates fixed by the board of trustees for water sold and furnished by the company.

The complainant is a corporation organized and existing under and by virtue of the laws of the State of Kansas for the purpose of acquiring property rights and transacting business in the State of California, subject, of course, to the constitution and laws of that State, one provision of whose constitution is that "No corporation organized outside the limits of the State shall be allowed to transact business within this State on more favorable conditions than are prescribed by law to similar corporations organized under the laws of this State." (Constitution of California, art. 12, sec. XV.)

The provisions of the constitution and laws of California which the complainant seeks to avoid as being in contravention of the Constitution of the United States are the provisions of section 1 of article XIV of the constitution of 1879 and provisions enacted by the legislature of the State pursuant thereto.

The constitutional provision is as follows:

"The use of all water now appropriated, or that may hereafter be appropriated, for sale, rental, or distribution, is hereby declared to be a public use, and subject to the regulation and control of the State, in the manner to be prescribed by law; provided, that the rates or compensation to be collected by any person, company, or corporation in this State for the use of water supplied to any city and county, or city or town, or the inhabitants thereof, shall be fixed, annually, by the board of supervisors, or city and county, or city or town council, or other governing body of such city and county, or city or town, by ordinance or otherwise, in the manner that other ordinances or legislative acts or resolutions are passed by such body, and shall continue in force for one year, and no longer. Such ordinances or resolutions shall be passed in the month of February of each year, and take effect on the first day of July thereafter. Any board or body failing to pass the necessary ordinances or resolutions fixing water rates, where necessary, within such time, shall be subject to peremptory process to

compel action at the suit of any party interested, and shall be liable to such further processes and penalties as the legislature may prescribe. Any person, company, or corporation collecting water rates in any city and county, or city or town in this State, otherwise than as so established, shall forfeit the franchises and water works of such person, company, or corporation to the city and county, or city or town where the same are collected, for the public use."

In *Spring Valley Water Works vs. San Francisco*, 82 Cal., 286, the supreme court of California held that this provision of the constitution of the State did not contemplate or require notice to be given to persons or corporations to be affected by the fixing of the water rates to be charged by them. Whether that provision of the constitution of California, as thus construed by the highest court of the State, would deny to a person or corporation supplying the people of a municipality with water acquired prior to the adoption of the provision the protection secured by the Constitution of the United States need not be decided or considered. In the present case the complainant came into the State of California and acquired the water and water rights which
65 form the basis of its suit under and by virtue of laws passed pursuant to that provision of the constitution of the State which it now seeks to assail as being contrary to the provisions of the Constitution of the United States. To permit the complainant to do this would, in effect, be to permit it to rely upon the constitution and laws of California as a valid basis for the acquisition of its asserted rights and at the same time to treat as void the same provisions where they impose a burden in connection with those rights. The complainant cannot be permitted to thus blow hot and cold in the same breath. If it was not willing to subject itself to the burden imposed by the constitution and laws of California upon all persons and corporations appropriating water in the State for distribution and sale, it should not have come, as it did, into the State and availed itself of the rights of appropriation conferred by the same constitution and laws. Taking those benefits, it assumed the corresponding burden and will not be heard to assert the one and repudiate the other.

This view does not, however, preclude the complainant from questioning the reasonableness of the rates established by the municipal authorities, for the power to regulate and fix is not the power to take without just compensation. To compel the complainant to supply the people of the municipality with water acquired by it without just compensation would manifestly be nothing short of confiscation. To what extent municipal authorities may go in that direction without reaching the prohibited point has never yet been definitely fixed by judicial decision, but that the power has a limit has been decided. Thus, in *Reagan vs. Farmers' Loan & Trust Company*, 154 U. S., 362-399, the Supreme Court said: "It is within the scope of judicial power and a part of judicial duty to restrain anything which, in the form of a regula-
66 tion of rates, operates to deny to the owners of property invested in the business of transportation that equal protection

which is the constitutional right of all owners of other property. There is nothing new or strange in this. It has always been a part of the judicial function to determine whether the act of one party (whether that party be a single individual, an organized body, or the public as a whole) operates to divest the other party of any rights of person or property. In every constitution is the guarantee against the taking of private property for public purposes without just compensation. The equal protection of the laws which, by the fourteenth amendment, no State can deny to the individual forbids legislation, in whatever form it may be enacted, by which the property of one individual is without compensation wrested from him for the benefit of another or of the public. This, as has been often observed, is a government of law, and not a government of men, and it must never be forgotten that under such a government, with its constitutional limitations and guarantees, the forms of law and the machinery of government, with all their reach and power, must in their actual workings stop on the hither side of the unnecessary and uncompensated taking or destruction of any private property, legally acquired and legally held." In the same case the court said that "it is unnecessary to decide, and we do not wish to be understood as laying down as an absolute rule, that in every case a failure to produce some profit to those who have invested their money in the building of a road is conclusive that the tariff is unjust and unreasonable; and yet justice demands that every one should receive some compensation for the use of his money or property, if it be possible without prejudice to the rights of others."

In the subsequent case of *Ames vs. Union Pacific Railway Company*, 64 Fed. Rep., 165, 177, Mr. Justice Brewer, sitting in the circuit court and having under consideration an act of the legislature of Nebraska prescribing the maximum rates for transportation of freight by railroads within that State, said, "What is the test by which the reasonableness of rates is determined." This is not yet fully settled. Indeed, it is doubtful whether any single rule can be laid down applicable to all cases. If it be said that the rates must be such as to secure to the owners a reasonable per cent. on the money invested it will be remembered that many things have happened to make the investment far in excess of the actual value of the property—injudicious contracts, poor engineering, unusually high cost of material, rascality on the part of those engaged in the construction or management of the property. These and many other things, as is well known, are factors which have largely entered into the investments with which many railroad properties stand charged. Now, if the public was seeking to take title to the railroad by condemnation the present value of the property and not the cost is that which (it) would have to pay. In like manner it may be argued that when the legislature assumes the right to reduce the rates so reduced cannot be adjudged unreasonable if, under them, there is earned by the railroad company a fair interest on the actual value of the property."

In *Spring Valley Water Works vs. San Francisco*, *supra*, the supreme court of California, in speaking of the provision of the con-

stitution of that State here in question, held that in order to justify the court in setting aside the rates fixed by a municipal corporation "there must be actual fraud in fixing the rates or they must be so palpably and grossly unreasonable and unjust as to amount to the same thing" (82 Cal., 306). To the latter rule—
 68 that is to say, that there must be actual fraud or its equivalent on the part of the municipal authorities in order to justify a court in adjudging the rates established by them unreasonable—I cannot yield assent. The same court in the same case, in construing the constitutional provision, said, "When the constitution provides for the fixing of rates or compensation it means reasonable rates and just compensation. To fix such rates and compensation is the duty and within the jurisdiction of the board. To fix rates not reasonable or compensation not just is a plain violation of its duty."

In the case of *Spring Valley Water Works vs. Schottler*, 110 U. S., 347, Chief Justice Waite, in speaking of the same constitutional provision, said: "By the constitution and the legislation under it the municipal authorities have been created a special tribunal to determine what, as between the public and the company, shall be deemed a reasonable price during a certain limited period. Like every other tribunal established by the legislature for such a purpose, their duties are judicial in their nature, and they are bound in morals and in law to exercise an honest judgment as to all matters submitted for their official determination." The court further observed that it was not necessary in that case to determine "what may be done if the municipal authorities do not exercise an honest judgment or if they fix upon a price which is manifestly unreasonable."

It is obvious, I think, that it must be held either that the right of judicial interference exists only when the schedule of rates established will fail to secure the owners of the property some compensation or income from their investment or else that the court must adjudicate, when properly called upon to do so, whether the rates established by the municipal authorities are so manifestly
 69 unreasonable as amounts to the taking of property for public use without just compensation. Undoubtedly every intention is in favor of the rates as established by the municipal authorities; but as it is firmly established that it is within the scope of judicial power and a part of judicial duty to inquire whether rates so established operate to deprive the owner of his property without just compensation, it seems to me that it logically follows that if the court finds from the evidence produced that they are manifestly unreasonable it is its duty so to adjudge and to annul them, for it is plain that if they are manifestly unreasonable they cannot be just.

In the solution of that problem many considerations may enter, among them the amount of money actually invested; but that is by no means of itself controlling, even where the property was at the time fairly worth what it cost. If it has since enhanced in value, those who invested their money in it, like others who invest

their money in any other kind of property, are justly entitled to the benefit of the increased value. If, on the other hand, the property has decreased in value, it is but right that those who invested their money in it and took the chances of an increase in value should bear the burden of the decrease. In my judgment it is the actual value of the property at the time the rates are to be fixed that should form the basis upon which to compute just rates, having at the same time due regard to the rights of the public and to the cost of maintenance of the plant and its depreciation by reason of wear and tear. If one has property to sell, it is its present value that is looked to, one element of which may very properly be its cost, but one element only. So, too, if one has property to lease, it is its present value rather than its cost upon which the amount of rent is based; and if, as said by Mr. Justice Brewer in Ames

70 *vs. Northern Pacific Railroad Company, supra*, the public were seeking to condemn the property in question for a greater public use, if that be possible, its present value, and not its cost, is that which the public would have to pay. It follows, I think, that where the public undertakes to reduce the rates to be charged for the use of such property it is its present value, and not its cost, that must be taken as a basis upon which to fix reasonable and just rates, having due regard to the cost of its maintenance, to its depreciation by reason of wear and tear, and also to the rights of the public. If upon such a basis a fair interest is allowed, no just cause of complaint can exist.

In the present case the evidence shows that the chief object of the organization of the complainant company was the acquiring of land and the subdividing and selling of it for profit. In pursuance of that purpose the complainant did acquire large tracts in San Diego county, California, in what is known as the Sweetwater valley, in Chula Vista, and in National City, all within the boundaries of the National rancho, and in Otay valley, adjacent to that rancho on the south, and in the territory known as the Ex-Mission lands, adjacent to National City on the north, aggregating many thousands of acres. Almost all of the lands were dry, and in their natural condition were of but little value. Principally for the purpose of adding to their value and of enabling the company to sell them to advantage the complainant in the years 1886 and 1887 appropriated, under and by virtue of the constitution and laws of California, the waters of the stream known as the Sweetwater river, and for the purpose of impounding those waters in order that it might distribute and sell them in connection with its lands, and likewise distribute and sell

71 them to other land-owners and individuals within their flow for purposes of irrigation and domestic and other beneficial uses, proceeded to construct across the bed of the stream a huge dam, known as the Sweetwater dam. Connecting therewith, the complainant constructed a system of main and lateral pipes, called pipe system No. 1, from which it commenced to serve consumers of water in February, 1888. As constructed, pipe system No. 1 covered a large territory, much the larger portion of which was owned by the company. Its Chula Vista tract, consisting of

about 5,000 acres, it laid out and platted into blocks of 40 acres each, and subdivided those blocks into lots of 5 acres each, to each of which its pipes were extended. National City embraces about 3,375 acres of land, of which about 833 acres are laid out into 6,691 town lots, of which the complainant, in January, 1887, owned 2,849, and of the remaining acreage the complainant then owned 685 acres. When the city ordinance here complained of was enacted the complainant still owned 2,671 city lots and owned about the same acreage within the city. The total population of National City was then about 1,300 and the aggregate number of acres then under irrigation within the city limits was about 747. The complainant's main and lateral pipes were laid in the streets of the city by virtue of a franchise granted by its authorities pursuant to the provisions of section 2 of article XIV of the constitution of the State, which declares: "The right to collect rates or compensation for the use of water supplied to any county, city and county or town, or the inhabitants thereof, is a franchise, and cannot be exercised except by authority of and in the form prescribed by law."

And the pipes were so laid as to reach the lots and farming lands of the company within the city, as well as the lots and farming lands of others therein, and were extended through the city

72 to supply a portion of the lands to the north, a part of which were owned by the company and a part by third persons. The pipes of the company's system No. 1 were also so laid as to supply water to the lands and its inhabitants adjoining National City on the south, much of which land was owned by the company and much of it by other persons. As the territory covered by the pipe system was then and, indeed, yet is very sparsely settled, it is manifest that it was laid for the purpose of attracting the purchase and settlement of the lands and in anticipation of a future demand for the water, and was far in advance of the then demand for it. Naturally and necessarily, in carrying into execution those objects, a great deal of money was expended by the complainant. The testimony on its behalf is that in acquiring its water and reservoir site and putting in its dam and system of pipes necessary to supply consumers thereunder with water it actually expended \$1,022,473.54. While these figures are contested by the defendants, I do not find any satisfactory evidence that the cost at the time was excessive. The work was undertaken and performed during what is known in southern California as the "boom of 1886-'7," and at a time when material and labor of all kinds were very high. Defective pipe, it is true, to the amount of \$57,666.53 was used, most of which had to be subsequently removed; but that was a latent defect, not readily discoverable, and which was not discovered by the complainant's engineer until after the pipe had been laid and put to the practical test of conducting the water. Shortly before the adoption of the city ordinance here complained of the complainant commenced and subsequent to the adoption of the ordinance completed another system of pipes, called pipe system No. 2, at a cost of about \$65,000.

73 This system was constructed to relieve the pressure upon system No. 1, and thereby to increase its efficiency and to supply lands not reached by that system.

From at least as early as the completion of its pipe system No. 1, the complainant, by public advertisement and otherwise, offered and held its farming and orchard lands and its lots in National City for sale, representing the water of its system to be piped to and over its lands and lots, and up to December 18, 1892, represented that an abundance of water would be supplied to purchasers of such lands for their irrigation at the rate of \$3.50 per acre per annum, and for city lots in ample quantity and at cheap rates. Under those representations the complainant sold a large number of acres of farming and orchard lands in separate tracts and widely scattered, to all of which purchasers it furnished water for purposes of irrigation at the rate of \$3.50 per acre per annum, and it also furnished water for purposes of irrigation to various other persons whose lands are within its flow at the same rate of \$3.50 per acre per annum. But commencing with December 18, 1892, and extending to February, 1895, the complainant demanded of all consumers of water other than those to whom it had furnished water for irrigation prior to that date the sum of \$50 per acre where water is required for purposes of irrigation in addition to the annual charge for what it denominated a "water right," and thereafter it demanded and still demands \$100 per acre in addition to the annual charge for a so-called "water right" for irrigation purposes from all persons other than those to whom it had furnished water for those purposes prior to December 18, 1892.

One of the objects of the present suit is to obtain a decree establishing the validity of that claim of the complainant to exact
74 a sum of money in addition to an annual charge as a condition on which alone the complainant will furnish consumers of water for irrigation purposes other than those to whom it had furnished it for such purposes prior to December 18, 1892; and the contest that arose between the consumers and the company over this charge for a so-called "water right" and the refusal of the municipal authorities of National City to allow that charge in respect to acreage property within the city limits is one of the principal causes of the present suit.

It does not change the essence of the thing for which the complainant demands a sum of money to call it a "water right," or to say, as it does, that the charge is imposed for the purpose of reimbursing complainant in part for the outlay to which it has been subjected. It is demanding a sum of money for doing what the constitution and laws of California authorized it to appropriate water within its limits, conferred upon it the great power of eminent domain and the franchise to distribute and sell the water so appropriated, not only to those needing it for purposes of irrigation, but also to the cities and towns and their inhabitants within its flow, for which it was given the right to charge rates to be established by law and nothing else. No authority can anywhere be found for any charge for the so-called "water right." The State permitted the water in question to be appropriated for distribution and sale for purposes of irrigation and for domestic and other beneficial uses, conferring upon the appropriator the great powers mentioned and compensat-

ing it for its outlay by the fixed annual rates. The complainant was not obliged to avail itself of the offer of the State, but, choosing, as it did, to accept the benefits conferred by the constitution and laws of California, it accepted them charged with the corresponding burden. Appropriating, as it did, the water in question for
 75 distribution and sale, it thereupon became, according to the express declaration of the constitution, charged with a public use. "Whenever," said the supreme court of California in *McCrary vs. Beaudry*, 67 Cal., 120, 121, "water is appropriated for distribution and sale, the public has a right to use it—that is, each member of the community, by paying the rate fixed for supplying it, has a right to use a reasonable quantity of it in a reasonable manner. Water appropriated for distribution and sale is *ipso facto* devoted to a public use, which is inconsistent with the right of the person so appropriating it to exercise the same control over it that he might have exercised if he had never so appropriated it." To the same effect is *People vs. Stevens*, 62 Cal., 209; *Price vs. Riverside Land & Irrigation Co.*, 56 Cal., 431.

Nor can the complainant justly insist that the rates fixed by the municipal authorities of National City for water furnished the city and its inhabitants should be so adjusted as to in any way compensate it for losses, if any, sustained by it in the distribution of water to consumers outside of the city. It is quite evident from the record that the maintenance of so extensive a water system for the supply with water of such a sparsely settled territory, taken as a whole, and considering the value of the property and the depreciation by wear and tear of the plant, does not yield the complainant very much above expenses, although it appears from the statements of the accounts of the water department reported to the company by its president that the net income to the company from that department for the year 1894 was \$7,850.18; for the year 1893, \$13,160.58; for the year 1892, \$7,547.93, and for the year 1891, \$4,449.27; but for such profits, be they small or great, or even for losses thus incurred, the consumers of water within National
 76 City are not responsible. Such losses, if any such have been sustained, must be borne by the complainant as best it can, like all other companies and individuals who embark in undertakings whose realization does not come up to their expectations and hopes. Had the complainant succeeded in selling or in procuring the settlement upon and cultivation of all or a large proportion of its lands and lots, and thus have secured a larger number of consumers of its water, no doubt its investment as a whole would have proved fairly remunerative, and may, it is to be hoped, yet do so; but if, as I think the evidence shows, the rates established by the ordinance complained of, to wit, city ordinance No. 118 of the defendant corporation, will yield a fair interest on that portion of the value of the property properly referable to the territory embraced within National City, making due allowance for the cost of its maintenance and the depreciation of the plant by reason of its wear and tear, it follows that the complainant has no just cause of complaint. The evidence shows that the rates so established by ordi-

nance 118 will yield quite as much as and, indeed, a little more than the preceding ordinance No. 112 establishing rates for the preceding year, and that the rates established by that ordinance were practically the same as those established by ordinance No. 107, the next preceding one, and that the rates established by that ordinance were satisfactory to the complainant company, except that it did not allow the company pay for the so-called "water right." That claim on the part of the company appears to be, in the language of one of the witnesses, "the bone of contention" between the company on the one side and the consumers and city authorities on the other. That it is without any valid basis to rest upon I think very clear for the reasons already stated.

Nor can it make any difference that the complainant in 77 the construction of its plant and the carrying on of its work borrowed \$300,000, on which it pays interest, and for which, it may be, it issued its bonds. The buyer of such bonds, like the loaner of money on a mortgage upon real estate, does so with his eyes open. The loaner of money on a mortgage knows that conditions may be such as to increase the value of his security, or they may be such as to decrease its value. He takes the chances that everybody must take who engages in business transactions. The buyer of bonds issued by a water company such as the complainant has the like knowledge, and the further knowledge that the law, which every one is presumed to know, prescribes that the rates to be charged for the water furnished by the company shall be established and fixed by a special tribunal, subject, as all State laws are, to the paramount provisions of the Constitution of the United States, among which is one which secures such investors against the fixing of such rates as will operate to deprive him of his property without just compensation.

It results from the views above expressed that the bill must be dismissed at complainant's cost. It is so ordered.

ROSS,
Circuit Judge.

(Endorsed :) No. 618. U. S. circuit court, ninth circuit, southern district of California. San Diego Land and Town Company *vs.* The City of National City *et als.* Opinion. Filed May 4, 1896. Win. M. Van Dyke, clerk.

	Direct.	Cross.	Recalled.
John E. Boal.....	2	28	251-470
H. N. Savage.....	90	124	333-471
J. D. Schuyler.....	295	308	
Fred Copeland.....	341	...	
C. S. Alverson.....	350	368	
W. C. Kimball.....	401	463	448
Lynn Boyd.....	407	...	
H. A. Harbaugh.....	409	412	
John G. Routson.....	418	430	
T. R. Palmer.....	442	447	

79 In the Circuit Court of the United States, 9th Circuit, Southern District of California.

THE SAN DIEGO LAND AND TOWN COMPANY, a Corporation, Complainant,	} No. 648.
vs.	
THE CITY OF NATIONAL CITY, a Municipal Corporation, et al., Defendants.	

Report of Special Examiner.

Be it remembered that on the 30th day of September, 1895, and on the several days thereafter to which the examination was regularly adjourned, as hereinafter set forth, and at the times mutually agreed upon by the parties in said cause, at the office of Messrs. Works & Works, in the Lawyers' block, in San Diego, California, in said district, before me, George J. Leovy, who was by stipulation on file of the parties hereto appointed special examiner to take the testimony herein, personally appeared the several witnesses whose names are hereinafter set forth, who were produced and examined on behalf of the respective parties to the above-entitled cause. Messrs. Works & Works appeared as solicitors for the complainant, Messrs. Gibson & Titus and T. R. Palmer, Esq., appeared as solicitors for the defendants.

The following is a correct record of the proceedings :

80 In the Circuit Court of the United States, 9th Circuit, Southern District of California.

THE SAN DIEGO LAND AND TOWN COMPANY, a Corpora- tion, Complainant,	} No. 648.
vs.	
THE CITY OF NATIONAL CITY, a Municipal Corporation, et al., Defendants.	

Testimony taken before George J. Leovy, special examiner, in pursuance of an order of reference duly made and entered in said cause on the 9th day of September, 1895.

SAN DIEGO, CAL., *September 30th*, 1895.

At nine o'clock a. m. the taking of testimony herein is continued until ten o'clock a. m.

Stipulation.

MORNING SESSION—10 o'clock a. m.

The special examiner herein, George J. Leovy, Esq., having appointed W. W. Whitson and Frederick Meakin stenographers to take down and transcribe the testimony taken before him, it is hereby stipulated that the appointment of said stenographers is hereby approved and confirmed by the parties to this action; and it is further stipulated that the evidence to be taken by said special examiner may be taken down by said Whitson and said Meakin or either of them, in shorthand and thereafter transcribed into long hand and written out in typewriting, the same to be filed and used as evidence in that form; said testimony when reduced to typewriting to be certified by the stenographer by whom the same was taken, and upon such certificate being made the parties hereto respectively waive the signing of the evidence by the witnesses after the same is typewritten.

JOHN E. BOAL, being called as a witness for the complainant and being duly sworn by the special examiner to testify the truth, the whole truth, and nothing but the truth in this cause, now testifies as follows:

By Mr. WORKS:

Q. State your name, age, and place of residence.

A. John E. Boal; I will be thirty-five the 29th of November next; born in Perry county, Pennsylvania, November 29th, 1860; residence, National City.

Q. In what capacity have you been connected with the San Diego Land and Town Company during the past year?

A. As general manager.

Q. How long have you been the general manager of the company?

A. Since January 1st, 1893. I was acting general manager for a time—for a year and a half prior to that.

Q. In what capacity were you connected with the company, if any, prior to the time you were acting general manager?

A. I was chief clerk to the general manager.

82 Q. How long did you act in that capacity?

A. From November 5th, 1887, until July 14th, 1891.

Q. Do you remember about what time the San Diego Land and Town Company commenced work upon the construction of its water system?

A. In December, 1886.

Q. Were you connected with the company in any way at that time?

A. I was not.

Q. Acting in these several capacities have you been familiar during all this time with the affairs of the company?

A. I have.

Q. You may state as nearly as you can what amount of land in acres can be covered and irrigated by the present water system of the Land and Town Company?

A. You have reference to the land that the water will serve?

Q. Yes.

A. We estimate about 6,000 acres.

Q. Have you prepared any statement of the amount of land that can be irrigated, the amount that is now being irrigated, the amount that is not being irrigated, and by whom the lands are owned?

A. We are preparing such a statement, but it is not completed as yet.

Q. How soon will you probably be able to furnish that statement covering those different matters?

A. In from two to four days.

Mr. WORKS: I suppose we will have to pass that branch of the case until we can get that statement.

Q. Have you made any statement from your books of the amount expended in putting in the water system of the company?

A. Yes.

Q. I wish you would give the cost of the different parts of the system, including the reservoir and the dam and pipe line.

83 A. Sweetwater dam, \$344,080.91. I would like to say that this statement was made up as of January 1st of this year.

There are several things here that are segregated. Shall I give them in their segregated form?

Q. Yes; in their segregated form.

A. Lot I, Jamacha—this is in the reservoir site—313 acres, \$31,300.00.

Quarter section three, National ranch, 44 acres.....	\$4,400.00
Meter account.....	1,877.98
Tool account	259.93
Live-stock account.....	400.00
Cost of pipe line No. 1.....	544,154.72
Contract price of pipe line No. 2	65,000.00
Replacing 24-inch main, Chula Vista.....	15,000.00

At the time this statement was gotten out there were certain things that we had to estimate, as, for instance, pipe line No. 2 and repairs at the Sweetwater dam. Those repairs at the dam are about completed, and with a little more time I could get the exact figures. They overrun the estimate. The estimate here is sixteen thousand dollars. It has overrun that considerably.

Q. About how much?

A. I think, Mr. Savage, it has overrun that two or three thousand dollars.

Mr. GIBSON: Just confine yourself, Mr. Boal, to what you know.

WITNESS: Well, what it has overrun is not any definite knowledge that I have. I know it has overrun. I would have to say that the estimate for repairs on Sweetwater dam, caused by the flood of January last, was \$16,000.00, and this amount has been exceeded by several thousand dollars.

Q. The total is how much, Mr. Boal?

A. \$1,022,473.54.

Q. You may state what knowledge, if any, you have of book-keeping, Mr. Boal.

84 A. I was book-keeper for a hardware company for several years, in charge of their accounts.

Q. What connection have you had with the books of the San Diego Land and Town Company?

A. In a general way only. I never have had charge of the accounts.

Q. From what source did you derive the information that you have testified to as to the cost of the plant?

A. The books of the company and the estimates from the contracts that we had entered into.

Q. What part of the statement you have given is based upon estimates?

A. The construction of pipe line No. 2, the replacement of the 24-inch line on Chula Vista, and repairs of the damage done to the dam by the flood.

Q. And as to all the other matters, as to cost, you have testified from statements taken from the books?

A. Yes, sir. The only possible exception might be in lot I, Jamacha, and in quarter section three, National ranch. The charges have never been carried forward on the books, but the land is valued at the price that we are prepared to charge it out at.

Q. Where is that land situated?

A. Lot I is near the dam, and quarter section three, National ranch, is the land upon which the dam is constructed, and part of the reservoir also.

Q. You may state whether or not those two tracts of land are necessary for use as a part of the water system of the company.

A. They are necessary.

Q. How were those lands acquired—by condemnation or purchase?

A. They were acquired by purchase.

Q. You may state what you know, if anything, about any bonds of the company being outstanding.

A. In 1890 \$500,000 in bonds were authorized and have
85 since been sold, and in March of this year a million dollars were authorized, but none sold, I believe.

Q. You may state, if you know, whether any part of the proceeds of those bonds were used in the construction of the water system of the company.

A. I know that part of it was used in the construction of the system.

Q. Can you state about what amount was used for that purpose, if not all of them?

A. I would estimate that \$150,000 were originally used for that purpose, for the construction of the system, and that on the strength of the new issue that about an equal amount of money was raised and used.

Q. Well, subsequently to that time had any bonds been issued and used or any of the old issue used for the purpose of putting in any new improvements?

A. I cannot say.

Q. If you will refer to the memorandum you have made or the statement you have made, Mr. Boal, perhaps you can get at those amounts.

A. Well, I should say, in addition to the \$150,000 of the first issue, that \$50,000 additional was used up to the time the new contracts were entered into, and that \$100,000 was borrowed on the strength of the new issue, on the strength of the proposed new issue, and invested in the water system.

Q. What do you mean by the new improvements?

A. The construction of the pipe line No. 2, the replacement of the 24-inch main on Chula Vista, and the repairs at the dam.

Q. I wish you would explain just what main pipe lines the company has now, and when they were constructed, and how they connect with National City.

A. Pipe line No. 1 is the system as put in originally; it comprises some sixty miles of mains ranging in size from 36 inches down to 4
86 inches. From this line we supplied all the lands that were irrigated and all of National City that used water, up to the completion of the pipe line No. 2, and this now serves some lands on the outside, but is also connected with the old main in National City and furnishes the large part of the water used in the city at the present time.

Mr. GIBSON: That is No. 2?

WITNESS: Yes, sir.

Q. You may state what the necessity was for the construction of this pipe line No. 2.

A. It was found that pipe line No. 1 did not furnish water in sufficient quantities for the higher lands, either within National City or without, and it was to serve the higher lands that the new main was necessary.

Q. Well, was it necessary that that pipe line should be constructed

in order to furnish the full supply of water that the company had to supply to its customers?

A. It was.

Q. Is the company able now with these two main pipe lines to supply all the water it can store and furnish through its system?

A. Yes.

Q. You may state whether or not these different pipe lines you have referred to were necessary to be put in for the purpose of supplying the water.

A. They were necessary.

Q. And with reference to the Sweetwater dam, whether it was necessary to be constructed in order to store and supply the water?

A. It was necessary.

Q. What amount of interest is the company paying on its bonds outstanding?

A. Paying seven per cent. on the \$500,000 issue and six per cent. on the money borrowed on the new bonds which are used as collateral.

Q. You refer now to the \$100,000 that was borrowed to be invested in these new improvements?

A. Yes, sir.

87 Q. And that they are paying six per cent. on, and on the bonds seven per cent.?

A. Yes, sir.

Q. You may state what part of the system of the company is within the limits of National City, one of the defendants in this action.

A. Of pipe line No. 1, \$161,666.40, and the estimated proportion of pipe line No. 2, \$22,087.50; total, \$183,753.90.

Q. Of what do these improvements or parts of the system consist, Mr. Boal, that are within the city of National City?

A. Consist of pipe lines.

Q. How was the cost of that part of the system arrived at?

A. The total length of pipe was taken, and the average cost per foot of the pipe throughout the system was taken as the basis for reaching the totals.

Q. Well, you may state whether that was a fair and equitable way to arrive at the cost of the different parts of the system.

A. It is fair.

Q. And whether the amount you have stated is the correct amount of the cost within the city of National City so estimated.

A. It is.

Q. You may state what has been the operating expenses of the company, taking the year ending December 31st, 1894.

A. Exclusive of interest charges, \$12,034.99; including interest charges, \$22,534.99.

Q. How do the expenses for that year, the operating expenses, compare with previous years?

A. Their cost is very nearly the same.

Q. Are you able to state about what the expenses of operation will be for the present year?

A. About five per cent. more than for last year.

88 Q. Well, for the six months from January 1st, 1896, to July 1st, 1896, what will be the probable necessary operating expenses of the company?

A. Probably five to ten per cent. greater than one-half of the total yearly expenses of 1895.

Q. Why do you estimate that the operating expenses will increase?

A. The pipe lines are depreciating each year, requiring more attention in the matter of repairs and more labor to repair them and more replacements.

Q. Are you able from your experience to give any estimate as to the extent of the depreciation of the pipe lines of the company?

A. Not from personal experience in this pipe line. It has not gone long enough to make that definite.

Q. Well, from your general knowledge of that matter are you able to state what or something near what is the percentage of depreciation?

A. I should say six per cent.

Q. What would be your estimate of the depreciation on the dam itself—the Sweetwater dam?

A. Two per cent.

Mr. GIBSON: Is that per annum, or how?

WITNESS: Per annum.

Q. Have you estimated what the amount in money would be the depreciation of the pipe line and the Sweetwater dam?

A. I have.

Q. State the amounts.

A. On the pipe line, \$38,408.26; on the Sweetwater dam, the structure itself, \$5,000.00.

Q. Per annum?

A. Per annum.

Q. I wish you would state just what amount has been realized by the company from water rents from the commencement of the system to the close of the year 1894, giving each year separately.

89 A.—

In 1888	\$3,991.31
1889	11,054.86
1890	12,679.05
1891	17,451.73
1892	18,907.10
1893	22,255.86
1894	24,564.67
Total	<u>\$110,904.58</u>

Q. You may state also what amounts have been realized during that time from the sale of water rights, giving the amounts realized within the city of National City and those outside.

A. From the sale of water rights in National City, \$100.00 ; from the sale of water rights outside of National City, \$9,315.00.

Q. What have been the total receipts of — company, then, from all sources from the time the company commenced business down to the first of January last ?

A. Including a credit on account of service account, which amounted to \$1,434.61, total receipts, \$121,754.19.

Q. Can you state what amount was realized from the business of the company within National City for the year ending January first, 1895 ?

Mr. GIBSON : Is he testifying from this same statement ?

Mr. WORKS : He is just referring now to the statement he made to the common council or the board of trustees, I believe.

A. \$10,715.29.

Mr. GIBSON : That is total receipts for 1895, National City ?

WITNESS : No ; that is for the year 1894.

Q. Are you able to estimate what the probable amount to be derived from the ordinance in controversy in this action will be ?

A. Not materially different from this last year's operations.

90 Q. Have you made any estimate, Mr. Boal, of the exact amount that will probably be realized ?

A. I think I have made a rough estimate.

Q. Well, if you can state what that estimate is you may do so.

A. My estimate here is \$8,241.25.

Q. Then, according to your estimate, there would be a difference of something more than \$2,000.00 ?

A. Yes.

Q. In what respect does the present ordinance differ from the ordinance for the previous year that would, in your estimation, make the difference in the total receipts ?

Mr. GIBSON : Is it assumed now that he has both ordinances before him that he may make the comparison ?

Mr. WORKS : Yes ; he is familiar with both ordinances. The ordinances, of course, will speak for themselves, but I am asking him what, in his opinion, is the reason of the difference in the receipts.

Mr. GIBSON : What I want to know is if it is to be considered that the ordinances are in evidence.

Mr. WORKS : One is in evidence, and you will introduce the previous ordinance.

Mr. GIBSON : If he is going to base an estimate on it, we want it considered in.

WITNESS : I would like to say that this estimate of mine is made roughly, without going into the matter sufficiently close to make me feel certain at all of it.

Mr. GIBSON : The previous ordinance is No. 112. The present ordinance is No. 118.

Q. What is the number of the present ordinance, Mr. Boal ?

A. I do not recall, except as stated by Judge Gibson at the present time, No. 118.

91 Mr. WORKS: That is set out in the complaint; it is alleged and admitted.

Mr. GIBSON: The previous ordinance is 112, and the one before that is 107.

Mr. WORKS: Well, we will pass that for the present.

Q. Have you made any estimate, Mr. Boal, upon the figures of cost, the operating expenses, and the total receipts of the company and the receipts that will be derived, according to your estimates, from the present ordinance and your collections outside of National City as to what will be the net profits of the company or as to whether there will be any net profits during the present year?

A. That estimate will be made and furnished with the first estimates spoken of in my testimony.

Q. You may state what amount, in your judgment, can be realized from the sales of water from all sources from the system during the present year outside of National City.

A. I have estimated that to be from fifteen to sixteen thousand dollars.

Q. What, in your judgment, is the value of the entire water system of the company at the present time?

A. About \$1,100,000.00.

Q. You may state whether you have made a statement of the different amounts and estimates about which I have been inquiring; and, if so, whether the statement I now hand you is the statement made up by you.

A. I have made a statement, and it is the one you hand me.

Q. You may state whether or not, in your judgment, that states correctly the different items of cost and expenses and the various things about which you have been asked.

A. Yes; it does.

92 Mr. WORKS: The complainant now offers this statement in evidence as a part of the testimony of the witness and asks to have it marked Complainant's Exhibit No. 1.

(Marked Special Examiner's Exhibit, Complainant's Ex. No. 1.)

Mr. GIBSON: The defendants do not object to the statement going in as part of the evidence of the witness and for the purpose of facilitating the taking of evidence in this case, but it is to be understood that the truth of the facts and figures set forth in the statement is not to be deemed admitted by the defendant. This qualification will also apply to the statement to be hereafter furnished on behalf of the complainant, as heretofore testified to by Mr. Boal, the witness now under examination.

Q. You may state, Mr. Boal, whether or not the entire system of the San Diego Land and Town Company, as it is now constructed, is necessary in order to supply the water of the company to consumers under the system in National City and outside the city.

A. It is necessary.

Q. Have you made any estimate, based upon the amount of water that is being furnished inside and outside of National City and the

manner in which it is being furnished, as to what proportion of the expenses of the construction, maintenance, and operation of the water system should be borne by National City and its inhabitants?

A. I think I have made such an estimate, but I would like to revise it in this proposed statement I will furnish.

Mr. WORKS: Then we might as well pass that.

93 Q. Do you remember the circumstance of action being taken by the board of trustees of National City looking towards the adoption of the ordinance now in force fixing water rates?

A. I do.

Mr. GIBSON: Will not you distinguish that by the number?

— No. 118 is the one now in force.

Q. Were you the general manager of the company at that time?

A. I was.

Q. Where were the officers of the company residing at that time?

Mr. GIBSON: What is your object?

Mr. WORKS: I am going into the question of notice.

A. The president of the company resided in Boston; the vice-president in Boston; the secretary in Topeka, Kansas; the assistant secretary in Boston; the treasurer in Boston; the general manager in National City; the assistant treasurer in National City.

Q. You may state whether or not any notice was ever served upon you by the City of National City or any one else of any action to be taken upon an ordinance fixing water rates.

Mr. GIBSON: That is objected to as irrelevant and immaterial for the reason that the statute under which the rates were fixed by the ordinance in question gave all the notice that was necessary in the premises.

Mr. WORKS: If you admit that no notice was served, if you rely upon that, we will not take up time with it.

Mr. GIBSON: We just put in the objection there for what it is worth. I cannot recall the precise fact now myself.

A. There was not.

94 Q. Was any notice ever given to you or the company with reference to any action that was taken or to be taken with reference to the fixing of the rates or the adoption of the ordinance?

Mr. GIBSON: The same objection.

A. There was.

Q. In what way?

Mr. GIBSON: It is understood that this objection will apply to all this testimony on this point?

Mr. WORKS: Yes.

A. Notice was handed to the assistant treasurer at National City, and afterwards was brought to my office by him.

Q. Of what was that a notice?

A. That we should furnish a statement of the receipts and expenditures of the company, water department, for the preceding year for the purpose of enabling the trustees to fix the rate for the succeeding year.

Q. Was any other notice of any kind ever served upon the company?

A. Not to my knowledge.

Q. Do you remember about what the date of the service of that notice was?

A. The one concerning which I answered?

Q. Yes.

A. My recollection is about December 10th, 1894. It was handed to the assistant treasurer, and I do not recollect having seen it until some time in February of 1895.

Q. You may state what you did with reference to that notice, whether or not you had any such statement as that prepared for the use of the board of trustees.

A. We prepared a statement for them and filed a copy of it February 20th, 1895, with H. A. Harbaugh, city clerk.

Q. Was that statement verified by any one; if so, by whom?

A. It was not verified at the time it was filed, but the
95 original was later verified by the president, I believe.

Q. Will you state why it was not verified at the time it was filed?

Mr. GIBSON: We object to this as a matter of excuse on the ground that it is irrelevant, incompetent, and immaterial. I suppose you intend to excuse yourselves for not having verified the statement in time.

Mr. WORKS: Yes; we could not verify it by the proper officers, because we could not get it to them and back again in time to file it.

A. It was necessary to send it to Boston, and we could not get it until so much later that we filed a copy.

Q. You may state whether you made any explanation or gave any reason to the board of trustees or any officer of the city for not verifying the statement at the time it was filed.

A. My recollection is we did.

Q. To whom—do you remember?

A. I do not.

Q. Was anything said by you to the board of trustees or any of the officers of the city about filing the properly verified statement at a later time?

A. Yes; my recollection is that we made the statement to some members of the board that we would file a properly verified statement as soon as it could be obtained from the East.

Q. You may state whether or not that properly verified statement was subsequently filed.

A. It was.

Q. Do you know about what date?

A. I do not.

Q. Where do the officers who were required by law to verify such a statement reside at that time?

96 Mr. GIBSON: Objected to as incompetent, irrelevant, and immaterial, and it asks for a legal conclusion as to whom the proper officers were who should verify the statement.

A. In Boston.

Q. Where did the president and secretary of the company reside at that time?

A. The president resided in Boston, the secretary in Kansas, and the assistant secretary, who performed the duties of the secretary when necessary, in Boston.

Mr. GIBSON: This will go in under this same objection as to the question of notice?

Mr. WORKS: Yes.

Q. Are you sure, Mr. Boal, that the statement that you first furnished to the board of trustees was not verified at all, or was it verified by other persons than the president and secretary?

A. As I recall it, it was intended to be verified either by myself or by the treasurer, but my recollection is that it was not actually verified.

Q. You may look at the document I now hand you and state whether or not that is the statement—the copy of the statement—that was filed by you as above stated.

Mr. GIBSON: Is that the original there?

WITNESS: This is the copy of the original statement that was made, the first copy of it.

Mr. GIBSON: Is it the statement that was filed?

Mr. WORKS: No; it is a copy of the one that was filed, as I understand.

Mr. PALMER: This is the original statement that was filed. This statement was taken up and the verified one substituted.

Mr. WORKS: Well, that is what I thought.

97 A. It is the statement.

Mr. WORKS: The complainant now offers in evidence the copy of statement just referred to, the verification thereof, and the indorsements on the back. Will you admit that the indorsement on the back is in the handwriting of the clerk of the city of National City?

Mr. PALMER: Yes, sir.

Mr. GIBSON: Subject to the objections heretofore made as to the evidence tending to show excuse on the part of the complainant for not filing a proper and duly verified statement within the time prescribed by law and the ordinance.

Marked Special Examiner's Exhibit Complainant's No. 2.

Q. Mr. Boal, you may state whether at any time the company has fixed any charge for a water right for the sale of its water inside and outside of National City for irrigation purposes.

A. It has.

Q. At what time was the first charge fixed?

A. About October, 1892.

Q. What was the amount fixed for a water right then?

Mr. GIBSON: What is your object, Judge?

Mr. WORKS: I am showing as fully as I can the sources from which we have got revenue and how we got it.

Mr. GIBSON: What was the date—October, 1892?

WITNESS: About October, 1892.

A. It was fixed at \$50 an acre.

Q. Was that rate for a water right changed subsequently?

A. It was.

Q. When?

A. In February, 1895.

Q. What change was made in the rate?

98 A. It was changed to \$100 per acre.

Q. You have stated that the amount realized from the sales of water rights inside of National City amounted to \$100. Is that the total amount that has been realized by the company from the sales of water rights within the city?

A. It was the total amount up to January 1st, 1895. Since then we have sold a number of acres.

Q. Well, how many and what has been realized?

A. I cannot say offhand.

Mr. WORKS: I wish you would make a note of that and get it for us. (To Judge Gibson:) You may cross-examine Mr. Boal now, if you desire.

Mr. GIBSON: I think it would be better to leave the cross-examination of Mr. Boal and have it all together. It is understood that the complainant temporarily withdraws the witness Boal.

The further hearing in this cause is continued until ten o'clock tomorrow morning, October 1st, 1895.

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TUESDAY, *October 1st, 1895*—10 a. m.

JOHN E. BOAL recalled.

By Mr. WORKS:

Q. You testified yesterday that the company had made its charge for a water right—first, a charge of \$50 and subsequently one of \$100. Was any request made of the board of trustees of the city of National City prior to the adoption of ordinance No. 118 to allow the company to charge for a water right within the limits of National City?

Mr. GIBSON: Objected to as irrelevant, incompetent, and immaterial.

A. We made such request.

Q. What amount of water is furnished as a water right per acre under the rules of the company?

Mr. GIBSON: Objected to as incompetent, irrelevant, and immaterial.

A. We name one acre foot per acre per annum ; that is equivalent in gallons to about 326,000.

Q. You may state whether in your judgment a charge for water right of \$100 is or is not a reasonable charge.

Mr. GIBSON: Objected to as irrelevant, incompetent, and immaterial.

A. It is a low charge for us to make, considering the cost to us of developing that quantity of water.

Q. You may state whether in your judgment a rate of \$4 per acre per annum as rental for water is or is not a reasonable rate, considering the cost of your plant and the expense of delivering the water.

A. It is in my judgment too low a charge to make.

Q. You may state whether or not, considering the amount of lands that could be supplied from your system, whether the company can at such rate per acre furnish the water and make any profit.

A. It cannot make a profit.

Q. Are you familiar with the rates that are fixed by ordinance No. 118, made part of the bill in this case?

A. Yes.

Q. You may state whether or not in your judgment the company can operate its plant and make a profit upon the sale of its water at the rates fixed in that ordinance, taking into account also the charges that have been made and are being made for water outside of National City.

Mr. GIBSON: Objected to on the ground that it is incompetent, irrelevant, and immaterial, and that it is an attempt to revise the discretion of the board of trustees, which adopted the ordinance.

A. It cannot.

Q. What charge has the company been making, and what charge is it now making, for rental of water in addition to the water right that is charged?

A. It is making a charge of \$4 per acre—

Mr. GIBSON: What does the witness refer to?

Mr. WORKS: This is ordinance No. 118, I suppose.

WITNESS (continuing): Making a charge of \$4 per acre per annum for one class of lands, \$7 per acre for another class of lands.

Q. For what class of lands is it charging \$4 per acre?

A. Orchards and small fruits.

Q. And for what class does it make a charge of \$7?

101 A. Vegetable gardens and nurseries.

Q. What charge per acre per annum has the company been making and is now making for water furnished for irrigation outside of National City?

A. Three dollars fifty cents per acre per annum for one class of lands and \$5 for another class of lands.

Q. What has been the experience of the company as to whether it can make a profit upon the sale of its water at that price?

A. Its experience has been that it cannot continue to furnish water at that price and pay the operating charges, including depreciation.

Mr. GIBSON: Which does the witness refer to, the charge inside or outside of National City?

Mr. WORKS: Outside, this is.

Mr. GIBSON: If the witness refers to the profit that can be made at the prices charged outside the city, then we move to strike it out as irrelevant, incompetent, and immaterial.

Mr. WORKS: I asked him directly for the outside.

Q. What steps, if any, has the company taken to increase its rate of annual charges outside of National City?

Mr. GIBSON: Objected to as incompetent, irrelevant, and immaterial.

A. It has issued a circular to water-consumers, naming the rates at which it proposed to furnish water in the future.

Q. What rate was fixed by the company in that circular?

Mr. GIBSON: That is objected to. The circular would be the best evidence, if there is one.

Mr. WORKS: Have you got that circular?

WITNESS: Yes, sir.

Q. You may look at the paper I now hand you and state
102 whether or not that is the circular referred to in your last answer.

A. It is.

Mr. WORKS: I offer it in evidence as Complainant's Exhibit 3.

Mr. GIBSON: The same objection as before made.

Q. I see by this circular that the rates named that the company proposes to charge for water is \$7 per acre per annum for irrigation.

Mr. GIBSON: Let it be understood that all this testimony relating to this circular and the proposed change of rates in the future shall come under and subject to the objections already made.

Mr. WORKS: That is all right.

Q. You may state whether or not such a charge is necessary in order to return the company a profit upon the sales of its water.

A. It is.

Q. You may state whether or not, in your judgment, a charge of that amount is a reasonable charge per acre for furnishing water.

A. It is.

Q. Do you know whether or not the board of trustees of the city of National City had notice at the time of the adoption of ordinance No. 118 of the purpose and intention of the company to increase the rate of its annual rental per acre outside of National City?

Mr. GIBSON: Objected to as incompetent, irrelevant, and immaterial.

A. My belief is they had such notice.

103 Q. Had the company prior to that time announced its intention to increase its rates outside of National City?

Mr. GIBSON: Same objection.

A. I cannot say.

Q. Are you able to arrive at the exact date when the company did publicly announce its intention to increase the rate?

Mr. GIBSON: Same objection.

A. A circular was issued and mailed about June 1st of 1895.

Q. Do you know whether prior to that time the question as to the increase of rates had been discussed between the company or any of its officers and the consumers?

Mr. GIBSON: Objected to as incompetent, irrelevant, and immaterial, unless it is prior to December—the date in December when the demand was made by the trustees upon the company for the statement required by law.

A. There was a discussion between the company and a number of its consumers as to the proposed change in rates prior to the passage of ordinance No. 118 of the city trustees.

Q. Do you know whether the board of trustees of the city had notice of that discussion prior to the adoption to the adoption of the ordinance?

Mr. GIBSON: Same objection.

A. Some of the trustees were present at that meeting, as I recall it.

Q. Did the discussion take place at a public meeting?

A. The meeting was held in the land and town company's office, in National City, after invitations had been sent out to a large number of people to be present for the purpose of discussing it.

104 Q. How long was that before ordinance No. 118 was adopted?

A. I cannot say exactly, but several days.

Q. Who of the board of trustees of the city were present?

Mr. GIBSON: Same objection; it is incompetent, irrelevant, and immaterial.

A. I believe Mr. Routson and Mr. Samborn. There may have been others.

Q. Do you know whether they were present or any of them as a committee acting through the board of trustees?

A. I do not know.

Q. Was it announced by you or by any other of the officers of the company at that meeting as to what the intention was of the company as to increasing the rates outside of National City?

Mr. GIBSON: Objected to as incompetent, irrelevant, and immaterial.

A. I think the statement was made that the company proposed to charge the same rates to all consumers under its system, which would involve, of course, that the proposed rates in National City would be made to consumers outside of the city.

Q. Was any discussion had at that time as to the ability of the company to supply water at the rate of \$3.50 per acre that was then prevailing?

Mr. GIBSON: Same objection.

A. The statement was made that the rate of \$3.50 was much too low to enable the company to continue to operate its system.

Q. Was any rate named at that time by you or any other officer of the company as a reasonable rate to be charged by the company?

Mr. GIBSON: Same objection.

105 A. The same rates that were set out in this circular that has been above referred to were proposed to the city of National City in the form of an ordinance.

Q. Did that proposed ordinance include a charge of \$7 per acre for irrigation?

A. It did on the basis of a use of 350,000 gallons per acre. The real basis of the charge was two cents per thousand gallons, as set forth in this circular, with the minimum charge of \$4 per acre.

Q. Have you now a copy of the ordinance that was proposed to the board of trustees?

A. I have such a copy at the office in National City.

Q. You may state, Mr. Boal, whether in your judgment such a charge of two cents per thousand gallons, with a minimum charge of \$4 per acre for irrigation purposes, would be a reasonable charge to be made by your company under all the circumstances.

A. It would.

Q. You were asked yesterday if you had made a statement showing the amount of lands irrigated and capable of irrigation from the Sweetwater system, and by whom the lands were owned, both inside and outside of National City, and you stated that you could produce a statement of that kind. Have you now completed that statement?

A. I have.

Q. I wish you would look at the paper which I hand you and state whether or not that is a statement made up by you.

A. It is.

Q. You may explain, Mr. Boal, how this statement was made up, and from what sources you obtained the information upon which it is based.

106 A. Under National City I see "lands owned by company in 1887." This is lands below the 140-ft. contour line that lies within the city and was taken from the contour map that we

had prepared, and is, of course, exclusive of lands subdivided into lots. The same was done in finding the acreage owned by others. Then the lots—the number was taken from the map and the ownership determined by reference to our property book. The number of lots is given as exclusive of marsh lots—that is, determined by reference to the contour map. Under “irrigation,” land sold by the company is taken from our property books; lands owned by others and under irrigation was taken from our irrigation records in the office.

Q. You may state whether or not this statement contains a true and correct list of the property under your system and the owners of the property.

A. It does.

Q. Why do you take the 140-ft. contour line as the measure of the lands to be included?

A. Because it is much more expensive for us to deliver water at a greater elevation than that requiring larger pipes, and because there is more land below the 140-ft. contour line than our system is capable of serving.

Q. You stated yesterday that the system was capable of serving 6,000 acres of land. Is that more or less land than is situated below the 140-ft. contour line?

A. It is less.

Q. Then, if I understand you, the company is not able, with the supply of water it is able to store and furnish, to supply all other lands under that contour line?

A. It is not able.

Q. What number of acres are there that could not be irrigated by the company, taking the 6,000 acres as the full limit of
107 its capacity?

A. About 3,953 acres.

Q. Have you taken into account in that estimate the lots within National City?

A. I have not deducted the lot area now irrigated from the 6,000 acres, and it is possible that our system is capable of supplying the 6,000 acres total, which would be inclusive of the lots irrigated, and would increase the lands not capable of being served by water. The lot area is—

Q. What has been the experience of the company in the past three or four years as to whether the quantity of water used and the amount of rates paid have increased or decreased within the limits of National City?

A. They have increased some up to 1894, and my recollection now is that we collected less in 1894 than we did in 1893 from the city of National City.

Q. Was there any reduction in the rates allowed respecting those two years, 1893 and 1894, or was it the result of the use of less water?

A. I know of no reduction that was made, and I would hardly know how to account for the difference.

Q. What was the extent of the difference, in round numbers; was it a material difference?

A. A few hundred dollars only. If I might be allowed to look at some statements that are here I could tell you just what it is.

Q. You might look at those.

(Witness consults papers.)

Mr. GIBSON: What does the witness refer to beside Exhibit 2?

WITNESS: I find the statements at hand. One covers a period from July 1st, 1892, to July 1st, 1893, and it does not furnish the information which would enable me to say exactly what the difference in the years 1893 and 1894.

108. Mr. WORKS: The complainants now offer in evidence the statement of lots above referred to as Special Examiner's Exhibit Complainant No. 4. (To defendants' counsel:) You may take the witness.

Cross-examination by Mr. GIBSON:

Q. Referring to Exhibit No. 1 that you testified about yesterday, and which purports to contain, among other things, the expense of the construction of the dam and the distributing system of your company, we would like to know upon what you base the values and amounts set forth in this statement.

A. For the most part the amounts have been taken from our books. Where they have not been the exceptions were stated yesterday, I think, in my testimony. If I had the statement I could point out exactly.

Q. Well, then, these figures, excepting as to the estimates that are herein designated as such, were taken from the books of your company, were they?

A. The lands in lot I, Jamacha, and in quarter section three are not charged out on our books, but the extensions are made at a price which is reasonable, in our judgment.

Q. When you refer to "our judgment," to whose judgment besides your own do you refer?

A. To the judgment of the officers in the East, Mr. Cheney and Mr. Lanning and Judge Works.

Q. That is your attorney here?

A. Yes, sir.

Q. Did he assist you in making up this value?

A. He did not. He asked me for a list.

Q. Is this carried upon your books in this way as you have it—for instance, lot I in Jamacha, 313 acres, at a valuation of \$31,300?

A. There is no valuation on our books.

109 Q. Is there any valuation on your books respecting quarter section No. 3?

A. There is not.

Q. At what date was this valuation per acre fixed, say, for the land in lot I and in quarter section No. 3?

A. At the date the statement was made up, which I can't recall exactly. It was before the filing of the bill.

Q. Was it since February last?

A. Yes, sir.

Q. Do you know how much after February?

A. I do not.

Q. I don't expect you to testify within a day or an hour. Approximate it as nearly as you can.

A. I should say in April last.

Q. How did you arrive at this valuation, say, to the land in lot I?

A. We have been compelled to buy lands from time to time, paying from \$50 to \$350 per acre for the lands. We have within three years bought a piece of land near by lot I for which we paid \$250 per acre, and, considering its use for reservoir purposes, we thought \$100 was a very low price for us to name on it.

Q. What is the area of land in the reservoir?

A. The reservoir covers, when full, 721 acres. The total area owned by us is approximately between eight and nine hundred acres.

Q. What is the value per acre of the land in quarter section No. 3?

A. The part charged out for reservoir purposes we placed at \$100 per acre.

Q. What is dry land worth in that vicinity without being covered by water?

Mr. WORKS: Objected to as irrelevant, immaterial, and incompetent.

A. Dry land without water or without its being possible to serve it is worth anywhere from \$5 to \$50 per acre.

Q. And these lands in lot I and quarter section No. 3 would be worth \$5 to \$50 per acre if they were dry lands?

A. Yes.

Q. Now, regarding your system of book-keeping, we would like to have you explain to us what your method is as to the different accounts and how you designate the different accounts kept by your concern, with reference particularly to the cost of the Sweetwater dam.

A. The charges upon the ledger are made from vouchers that are prepared in the general manager's office. Those vouchers are prepared from the bills of material furnished and used in any particular piece of work, and pay-rolls are made up and distributed to different accounts, according to where the work has been performed.

Q. How do you distinguish between your stock or plant or construction account and your expense or maintenance account?

A. In the same way. The material and labor that goes into the construction is charged to the dam or pipe line, as the account may be, and the repairs are kept in a separate account known as the maintenance of the dam or maintenance of the pipe line. The ex-

act time of the men employed is kept upon time-cards for that purpose, and the exact account of materials used is kept.

Q. Then if you repair the dam, that goes to the maintenance account?

111 A. Yes, sir.

Q. And it is not added to the value of the plant?

A. It is not.

Q. What repairs have been made upon the dam since its construction?

A. There have been certain things added——

Q. Just describe them generally.

A. The wasteway has been the principal repair work done there.

Q. Do you know what that cost?

A. No; not exactly. I will have a statement that will show about what it cost.

Q. In Exhibit 1 the value of the Sweetwater dam is set forth as \$344,080.91. Now, state of what items of expense of construction that is made up, or whether it is an estimate of its present value or not.

A. May I have the statement? (Paper handed to witness.) Do you refer to the item \$344,080.91?

Q. Yes. State first whether *that you* claim to be the cost as shown by your books, or whether it is an estimated valuation.

A. It is the cost as shown by our books.

Q. Now state the different items of which that is made up.

A. It is made up of the construction account of the dam and of such expenditures as were necessary to acquire flowage land exclusive of the amounts shown below.

Q. That is, of lot I and quarter section three?

A. Yes, sir.

Q. How much of that is construction account as distinguished from the land account? In other words, what did the dam cost alone, separate from the land?

A. That can be shown exactly by our books this afternoon,
112 but my recollection is two hundred and fifty odd thousand dollars.

Q. How much did the land exclusive of lot I and quarter section 3 cost?

A. If my recollection of the cost of construction of the dam is correct the land would have cost the difference between that amount and the amount charged out on the statement.

Q. Do you mean to say that there is nothing in this total sum of \$344,080.91 excepting the cost of building the dam and the cost of acquiring the land for the reservoir site?

A. I know of no other charge.

Q. Is there any interest on the amount expended charged up to that account?

A. Not that I know of. The books will show it if there is.

Q. What is the land worth that is covered by the dam site, exclusive of lot I and quarter section 3?

A. Do you mean that you would like me to make an estimate of its value?

Mr. GIBSON: I withdraw the question.

Q. Is that the same character of land as that in lot I and quarter section No. 3?

A. On quarter section No. 3 there is a site for a dam upon which we constructed our dam which is different materially from lot I. That is level bottom land. The remaining land in the reservoir is more nearly like lot I than it would be like the land of quarter section No. 3. It is flowage land.

Q. And of the same general value?

A. Yes; because it is used for the same purposes.

Q. And it would be worth or its value would be the same, 113 if it were dry land, as that in lot I?

A. No; not throughout.

Q. What would be the difference?

A. Lot 1 is more nearly all of it in the bottom of the valley, while a portion of the other land is side hill, rocky, and untillable.

Q. Then it would not average as high in value as the land in lot 1?

A. Not for farming purposes.

Q. Now, in 1887, the company gave a statement of the cost of construction of the dam as \$204,190.66; do you know anything about that?

A. I do not. The dam was not completed in 1887.

Q. How was it in 1888?

A. The main construction, if not all, was completed in 1888.

Q. Do you remember when the dam was completed and when you began to furnish water under it?

A. I do.

Q. Just state when it was.

A. About March, 1888.

Q. Do you know how much money was expended in 1891 for the construction of the dam and for what purpose?

A. I do not.

Q. In 1892?

A. I do not.

Q. All you know, then, is just the simple total that you have set forth here as the cost of construction as shown by the books?

A. That is all I know.

114 Q. And you have testified that you simply have a general supervision of the books?

A. I have the general management of the books. I do not supervise them.

Q. Have you traced any of these accounts through from the beginning relating to construction?

A. I have not.

Q. You don't know anything, then, about the construction or the cost of it excepting what is shown by the books?

A. That is all.

Q. And is it the same with regard to the cost of pipe line No. 1?

A. It is.

Q. And all these costs set forth in your Exhibit No. 1 excepting the estimates that you have made of value?

A. The same.

Q. Now, you say that this whole system is necessary for the supplying of water to the lands belonging to the San Diego Land and Town Company and to customers to whom it has sold lands?

A. I believe I said that it was necessary to supply the lands inside and outside of National City that are being supplied and capable of being supplied.

Q. Well, that is all under the 140-ft. contour of your reservoir?

A. Yes, sir.

Q. And you say that your system is capable of supplying about 6,000 acres?

A. Yes, sir.

Q. And that there are about 3,953 acres under that contour line that your system cannot supply with water?

A. Yes; by reason of it being that much in excess of the 6,000 acres.

115 Q. What is the capacity of your reservoir?

A. In gallons it is approximately six billion.

Q. Do you know how many miners' inches that is the equivalent of?

A. Not off-hand. I can figure it out for you.

Q. Will it take very long.

A. No; I would first like to know what you want, the constant flow for the year or for the irrigation season.

Q. Well, for the year; and then we can subdivide it.

A. You don't want it exactly, do you?

Q. No; approximately.

A. Something over 1,200 inches.

Q. 1,200 inches for a year?

A. For a year.

Q. What do you estimate the duty of an inch of water for a year?

A. In the first place, we have intended to carry over a supply of water from year to year to provide largely against a short rainfall; that would reduce the amount of available water from year to year to from fifty to sixty per cent. of the total capacity of the reservoir, and in practice we find that irrigators have been using from 350,000 gallons per acre per annum up to probably 600,000 gallons, so that our use in the past on the area that is irrigated has convinced us that 6,000 acres will be the full amount for full duty of our reservoir.

Q. And you wish to be understood as saying that 6,000 acres is all that you can reasonably serve, with the capacity you have, in view of the necessity of carrying over from fifty to sixty per cent. of your water to succeeding years in order to be prepared for a dry season; is that it?

116

A. I would like to correct you by saying that we would use from fifty to sixty per cent.

Q. Well, then, from fifty to forty per cent.

A. Yes; and in view also of the amount of water that has heretofore been used per acre upon the irrigated lands. If in the future it is found that people can grow their orchards on less use per acre than they have in the past, the duty of our reservoir will be increased.

Q. Do you know what relation 350,000 gallons per acre per annum bears to what is known as a miners' inch of water?

A. It is equivalent to one inch to seven acres, counting for the irrigation season, which is the usual way of counting, I believe.

Q. What do you consider the irrigation season out there?

A. Two hundred days.

Q. Beginning and ending when?

A. Beginning in May and ending in November.

Q. May 1st?

A. No; later than that—about the middle of May.

Q. And the middle of November?

A. Somewhere along there.

Q. What is the quantity *per capita* that is used for domestic purposes?

A. We have no means of knowing.

Q. Don't you know how much water you sell for domestic purposes in National City?

117 A. I do not. We do not measure the water, generally. It is supplied from the same pipes from which irrigation water is taken, and there is no means of saying what they do use *per capita*.

Q. Have you made any calculation as to the quantity necessary *per capita*?

A. I have not.

Q. How is this water distributed to irrigators in the tract both inside and outside of the city?

A. The irrigator takes a service from our main pipes as they are laid and carries the water to a point from which he desires to distribute it. It is then generally turned loose into flumes and conducted over the land in small ditches in the usual way practiced at Riverside and elsewhere.

Q. And the company simply delivers from the main pipe into laterals owned by the irrigators?

A. Yes.

Q. Who makes the connection and at whose expense is it made with the main pipe line?

A. The company makes the connection at the expense of the user in almost every case.

Q. Have you any uniform rate for making connections?

A. We have.

Q. What is your rate?

A. We have a schedule rate for services up to one inch in diameter, and larger services we charge out material and labor at cost,

and charge in addition ten per cent. to cover incidentals, which is supervision, office expenses, and so forth.

Q. Do you go by a fixed schedule, one that is prepared by the company?

118 A. We do for the small services up to one inch.

Q. And then above that in the manner that you have indicated?

A. Yes, sir.

Q. Can you furnish us with a copy of that schedule?

A. We can; not now, but later on.

Q. When a charge is made for making connection according to the company's schedule, to what account is that carried?

A. It is credited to service account. It is charged to the individual and credited to service account.

Q. That service account, is that identical with the construction account?

A. It is not.

Q. What account is it identical with?

A. The service account.

Q. What I want to know is this: Are the service account and the expense account the same thing?

A. They are not; entirely separate.

Q. Explain the difference.

A. The service account at the present time stands a credit upon our books. The material and labor that has been charged into the service account has been more than offset by the credits we have given. The expense account is an expense account pure and simple; stands as a debit upon our books. In the service account, as I say, we debited with material and labor and credited with the charges made to the individuals for placing in their services.

Q. Then it is an entirely separate account?

A. An entirely separate account.

Q. And is not carried to the construction account in any way?

119 A. It is not.

Q. What is your custom with regard to exacting the cost of making connections? Are the consumers compelled to pay before the connection is made or afterwards, according to a statement furnished by you?

A. It is a charge made after the service is put in in all cases where we consider the applicant good for the amount.

Q. And where you do not consider him good for the amount?

A. We should ask him to pay in advance or at least make a deposit upon the service. I think that has been done very rarely. I don't recall a case. There may have been some.

Q. Who supervises or has control of these connections after they are made, the company or the consumer, or both?

A. The company.

Q. He applies for the water and you turn it on according to his demand and his right as you understand it?

A. Yes.

Q. Of what does the connection consist?

A. It consists of a saddle placed around the pipe, a stop-cock which screws into the saddle, in many cases of a lead connection, and from the end of the lead connection, which is about two feet long, a pipe of the required diameter is run to the sidewalk, and a stop-cock with the necessary running threads put on at that point. It is then ready to be connected with the consumer's individual pipe.

Q. The consumer's individual pipe does not connect directly with your main, but with an extension from the main to the sidewalk or to the land of the consumer, to which he connects his pipe. Is that it?

120 A. Practically.

Q. How many stop-cocks are there on that connection? Do you put it simply at the end of your lateral extension or is there one up at the main pipe?

A. As I said just now, there is one at the main pipe that screws into the saddle; there is another stop-cock at the curb.

Q. Then there are two stop-cocks?

A. There are two stop-cocks. That is in accordance with the requirements made by most water companies in cities. I might say when a connection is made in the country, where the stop-box can be placed immediately over the main, we do not require this second stop-cock, although we ask that it be put on for the purpose that the consumer may have a means of controlling his supply without coming to us every time he wants his water shut off.

Q. Then he controls the stop-cock at the point of connection with his private pipe line and the company controls the stop-cock near its main in all cases where there are two stop-cocks?

A. In all cases where there are two stop-cocks we control both, excepting in the country, where we do not insist on the second stop-cock being put on. There, if he puts one on, it is under his own control, because in that case we can get at the main cock without digging up a street or going to unreasonable or unnecessary trouble and expense. The object of the second stop-cock in the city is to avoid a digging up of the middle of the street every time the water is to be turned off.

Q. How far beyond the edge of the sidewalk or into the lot of the consumer, in National City, does your lateral pipe extend?

A. It extends about one foot within the sidewalk limits.

121 Q. Is that in all cases?

A. That is the rule.

Q. Where water is used for both domestic and irrigating purposes?

A. Yes, sir.

Q. And in nearly all cases, then, in National City you have the double stop-cock?

A. Yes, sir.

(Recess until 1.30 p. m. of this day.)

(Afternoon session.)

Q. When was the pipe system No. 2 commenced—the construction of it?

A. It was commenced about November or December, 1894.

Q. When was it completed?

A. With the exception of about 300 feet, which is yet to be laid, it was completed thirty days ago—about the 1st of September.

Q. When were the repairs of the dam made that you charge for here?

A. They were begun in January, 1895.

Q. And when were they completed?

A. They will — completed about tonight or tomorrow night.

Q. What do you include in those repairs?

A. The raising of the parapet wall at both ends, the enlargement of the wasteway, both by making it wider and higher; the construction of pipes through the tunnel, and the construction of a shaft leading to the tunnel inside of the masonry dam, which was constructed across the tunnel some three or four years ago.

Q. To what account was that charged?

122 A. It has not been finally distributed yet. For the purpose of determining its exact cost we have called it a wasteway account.

Q. In making up your values here is that added to the cost of construction account?

A. It does appear in the testimony I have given, except in the estimate, as shown on that statement.

Q. You intend that estimate, do you not, to be included as part of the value of the plant?

A. Yes.

Q. And for that purpose it was placed in this statement?

A. Yes.

Q. Is it the same with regard to the cost of constructing pipe line No. 2?

A. It will eventually be charged to pipe line.

Q. But has not been so charged yet on the books of the company?

A. It has not; it stands as pipe line No. 2.

Q. Have all those repairs been completed on the dam, did you say?

A. It is my impression they are about completed tonight.

Q. And you don't know what the expense will be any further than you have estimated it here for those two items of cost?

A. As stated in my testimony yesterday, it will exceed the estimate given there.

Q. I see you have it here, Repairs on the Sweetwater dam—flood. What does that mean—\$16,000?

A. The repairs were made necessary by the flood of January last.

Q. Was raising the parapet wall necessary?

123 A. It was.

Q. For what purpose?

A. For the purpose of preventing another flood from overflowing the ends of the dam and endangering the structure.

Q. That is to direct the water towards the center?

A. It is.

Q. Are you an engineer by profession?

A. I am not.

Q. All you know, then, of the necessity for such repairs, and also for the whole of this plant, as to the supply of the territory that it is designed to cover and of the population that the territory embraces, is from what you have learned as general manager of the company—from your knowledge as general manager?

A. Yes.

Q. I see you have here "Pipe line No. 2 (contract)" in brackets. What does that mean?

A. It meant at the time the statement was made up that we had not actually expended the money, but had contracted to do so, and were under obligations to spend it.

Q. When it should be completed according to the contract?

A. Yes, sir.

Q. Do you know what is embraced in the cost of pipe line No. 1 as you gave it here?

A. The pipe lines that were constructed prior to the building of pipe line No. 2?

Q. That pipe line was already in existence on the 20th of February last?

A. Which pipe line?

Q. Pipe line No. 1.

124 A. It was, with the exception, of course, of the part that had been washed out and was afterwards repaired.

Q. What proportion of that pipe line No. 1 has had to be replaced, if you know, from the time of its first construction?

A. I can't say exactly. The 24-inch line at Chula Vista—a mile of it, I believe—was replaced, I think, this year.

Q. Prior to what time?

A. Prior to June of this year.

Q. When you replaced portions of pipe line No. 1, to what account was the cost or expense carried?

A. The mile of 24-inch pipe that was replaced has not been charged out into its final account. It was kept as Chula Vista pipe line until it should be completed, and I am not quite certain what it will be finally charged into, but my impression is to maintenance. We have made no other replacements of any extent, and I think in all cases the expense of repairs that have been necessary have gone into maintenance.

Q. What was the expense of replacing that one mile of 24-inch pipe? Can you state from memory?

A. In the neighborhood of fifteen thousand dollars; some less than that, I think, but I can't say exactly how much.

Q. How long had that one mile of 24-inch pipe been in the ground?

A. That this replaced?

Q. Yes.

A. That line of pipe was never serviceable. The 24-inch pipe originally laid was part of a lot that we had laid that was found defective and for the most part taken up.

Q. Taken up from time to time.

125 A. Yes; most of it in 1888 and 1889.

Q. How much of it was taken up?

A. Practically all of it was taken up in the first two or three years after the system was completed. We have some 700 feet in use at the present time at E street, Chula Vista. After taking up the spiral pipe, as it was called, a portion of it was repaired and relaid.

Q. How many miles in the aggregate of it was take-up and replaced or repaired?

A. I have not in mind approximately the length of the pipe. I can furnish it.

Q. Can Mr. Savage tell that?

A. Yes.

Q. Do you know whether the cost of replacing the spiral pipe in pipe line No. 1 was charged to the construction account or maintenance account?

A. There was very little of it replaced. It happened to be laid in such portions of our system that had not called for water since; it was laid in the south end of Chula Vista very largely, and that territory is not now under irrigation; it has not called for water and it is not necessary to replace it.

Q. It would have to be replaced, would it, if there should be a call for water in that locality?

A. Yes, sir.

Q. About how much of it?

A. My estimate would be a very crude one. I think the engineer can answer that better.

Q. I don't quite understand your answers when you say
126 that very little of it was replaced and that a good deal of it was replaced and most of it in 1887. Are you referring now to the original spiral pipe that was found to be defective?

A. Could I have my answers read?

Q. Yes; certainly.

A. And you may point out what you don't understand. (Reporter reads.)

Q. You say a good deal was taken up and then comparatively a small portion of it was taken up?

A. I don't understand my answers to convey that impression. I will state again that most of the spiral pipe was taken up, with the exception of a small part on E street, Chula Vista, and a part of what was taken up was afterwards repaired and laid elsewhere. It was not relaid in the place where it had been taken up, but is a part of what we now call the Ex-Mission extension.

Q. Is that through National City?

A. That is north of National City. A portion of it is a connection between the end of our original pipe as laid in Chula Vista and the end of the entrance to Ex-Mission lands.

Q. In what direction do the Ex-Mission lands lie with reference to National City?

A. North.

Q. Can you tell us from the books of the company what it cost to take up that pipe and to relay such portions of it as you did relay and to replace such other portions of it as you did replace and to what accounts such cost was charged?

A. I can by referring to vouchers and pay-rolls, probably.
127 I can't from memory tell where the cost of taking up the pipe line was charged. The cost of relaying and redipping and retreating the spiral pipe was charged to Ex-Mission extension, and that was afterwards paid for by the people through whose land it runs, and that account, as I recollect it, stands discharged on our books.

Q. Then that portion of the pipe that the people paid for in the way that you state does not enter into this cost as given in this statement in your Exhibit No. 1?

A. It does not.

Q. Do you know how much that cost, the portion that you redipped and relaid?

A. In the neighborhood of \$7,000.

Q. Can you tell us to what account the replacing of the portion that was replaced was carried?

A. My recollection is it has been charged to maintenance.

Q. You have it here: Replacing 24-inch main, Chula Vista, \$15,000. Is that the item you refer to? I am referring now to your Exhibit No. 1.

A. No; that is not what I referred to in my answer just now. As I stated awhile ago, that item has not been finally disposed of, but my impression is that it will eventually go into maintenance of pipe line.

Q. It does not appear to which pipe line this item of \$15,000 for replacing 24-inch main in Chula Vista is chargeable in your Exhibit No. 1?

A. As I stated before, that has not been finally disposed of.

Q. Was this work upon pipe line No. 2 or pipe line No. 1?

128 A. It was for the purpose of replacing the pipe that had formerly been constructed under pipe line No. 1.

Q. This whole item of \$15,000?

A. Yes, sir.

Q. Then your practice is, it seems, to charge the cost of replacing pipe or any part of the system to the construction account; is that it?

A. To the maintenance account.

Q. You said here it would eventually—I understood you to mean the construction account.

A. I think you will see that I said to the maintenance of pipe line, which is not construction account.

Q. Well, can you say without examining the books what previous charges or expenditures for replacing pipe and other parts of the

system, say either pipe line No. 1 or any connection with the reservoir and its appurtenances, were charged?

A. I could not be very positive about it, yet I think an examination of the books will show that so far as replacements have been necessary they have gone into maintenance.

Q. In this Exhibit No. 1 there is set forth: First bonds issued by company, about \$500,000. Now, you say that the probable amount chargeable to the water system is \$200,000. How do you arrive at that result?

A. Well, at the time the bonds were issued there were large amounts outstanding as due on pipe purchase and some construction account, and it is the only source from which we could have received the money to pay those accounts. It is in the nature of an estimate as to the exact quantity; it may be more or it may be some less, but I think \$200,000, including the interest, charges
129 that have been necessary since, and construction account since; they have run it to that amount.

Q. You testified that about \$150,000 of the proceeds of the bonds the original issue of bonds, was used in the construction of the system. Then the remaining \$50,000 would be interest charged—of the \$200,000 estimated to be charged to the water system?

A. It would be probably construction charges; additions and repairs, perhaps. I can't tell just where it would go in—and the interest charges, as well for the time between the issue of the bonds and the date of that statement.

Q. Do you remember when these bonds were issued?

A. Yes; approximately.

Q. What date?

A. 1890.

Q. I mean the issue of \$500,000?

A. Yes, sir; well, I don't know whether the word "issue" covers it or not. They were authorized at that time, and sold from time to time as the money was required, as I understand it.

Q. Do you know whether the bonds were disposed of for cash or for property or not?

A. Cash.

Q. In every instance?

A. As far as I know.

Q. You say there was a million-dollar issue of bonds authorized. When was that authorized?

A. March, 1895.

Q. You say that none of these bonds have been sold?

A. The statement from the Boston office is that one bond
130 of \$500 was disposed of, sold.

Q. You don't know that of your own knowledge?

A. No.

Q. You say that some of these bonds were pledged as collateral to secure floating indebtedness of the company?

A. Yes, sir.

Q. How much of these bonds were so pledged?

A. The indebtedness, as has been stated to me, is about \$158,000,

and the treasurer informed me that the bonds were put up as collateral at fifty cents on the dollar—\$316,000 worth of bonds pledged to secure the payment of \$158,000.

Q. Do you know who holds those bonds—an officer of the company or not?

A. I don't know positively, but it has been generally understood that the estate of B. P. Cheney holds the bonds.

Q. B. P. Cheney in his lifetime was an officer of the company, was he not?

A. He was a director of the company for a number of years, but has not been for some two years and a half.

Q. These bonds that were pledged were so pledged by the company to secure the indebtedness to him?

A. As I understand it.

Q. If \$500,000 worth of bonds were sold and \$150,000 of the proceeds went into construction of the plant, what became of the remainder?

A. I believe that at least \$50,000 of the remainder was afterwards used in the water department in one way or another, as explained awhile ago. The other has been used partly to put our land
131 under cultivation and for other uses that I have no knowledge of.

Q. I now hand you Exhibit No. 2 and ask you to look under the head there: Maintenance, dam and pipe line. You observe that in 1890, 1891, 1892, 1893, 1894, \$10,500 for each year is charged as interest. Now, what does that refer to?

A. That has reference to seven per cent. on \$150,000, I believe. I will figure it out and see. (Makes computation.) It does.

Q. That seven per cent. on \$150,000, is that the bond interest?

A. The bond interest; yes, sir.

Q. You verified that statement which you hold in your hand, the Exhibit I last referred to, originally, yourself and Mr. Lanning?

A. Yes.

Q. Now, in Exhibit No. 1 you have it set forth as amount of interest to be paid annually on indebtedness incurred on account of water department seven per cent. on \$300,000, amounting to \$21,000. Now, how do you explain the difference between that statement and this, or rather this last statement and the statement furnished under oath to the board of trustees, under oath by yourself and Mr. Lanning?

A. \$100,000, I think, as stated there, is set apart to cover the construction accounts for this year that were authorized and not actually made, and the remaining \$50,000 is what I believe to be a fair addition to the \$150,000 that has been used since the construction of the system in 1890.

Q. How do you arrive at that expenditure of \$50,000?

A. The system has called for money during all of those years in one way or another, and the income has not been anywhere near enough to provide it. The money has had to come from
132 somewhere, and I know of no other source than from the bonds that have been sold from time to time.

Q. Do you mean that that has called for that amount for construction or maintenance since 1890?

A. I estimate that that amount has been called for in various ways, construction, maintenance, interest charges.

Q. Well, your interest charges, generally speaking, would cover the cost of operating the whole business, land and water department, would it not?

A. The \$10,500 interest?

Q. No; I say the interest account generally.

A. I don't understand that it would. I don't see how it would cover all those costs. If the company was operating upon borrowed capital, the interest charge would take care of the borrowed capital only, and the services of the employees would still be an added charge to it.

Q. Now, the interest account. If there were \$500,000 of bonds out, would be the interest called for by the bonds of that amount, would it not?

A. Yes.

Q. Now, you have made an arbitrary division of the interest expense, charging \$150,000 in Exhibit No. 2 to the expense of maintaining the water department?

A. We have.

Q. Then the remainder would be properly chargeable, I suppose, to the expense of maintaining the other branch or branches of business that the company is engaged in?

A. Yes; if the \$150,000 was the total amount that ought to have been charged up against the water department.

133 Q. You don't know that this other \$50,000 that you charge in this item of \$300,000 was expended or not, do you?

A. I don't know, except as explained before, that I do know additional money has been required, and I know of no other source from which it could come.

Q. Do you know that \$50,000 was required?

A. That is an estimate; I don't know whether that was sufficient or not.

Q. Then the other \$100,000 is an estimate for work to be done in the future?

A. Yes, sir.

Q. Now, this \$21,000 item—

A. Most of it has been done by this time. It was in the future when that statement was made up.

Q. That is statement No. 2, or this, No. 1. Which do you refer to? This is the statement furnished the board.

A. Statement No. 1. You are referring to the \$100,000 now?

Q. Yes.

A. Which appears in that statement and not in the other?

Q. Yes. I believe you said this statement was made up, when? I mean No. 1.

A. I believe I said about April, 1895.

Q. This, No. 2, was made about February 20th, 1895?

A. Yes.

Q. Now, in statement No. 1 you have \$161,666.40 as the extent and value of the distributing plant within the limits of the city of National City. Upon what is that based?

A. That is based upon the number of feet and the size of pipe laid under pipe line No. 1. It does not include any of the construction of pipe line No. 2.

Q. Estimated proportion of new line, \$22,087.50; what is that—is that the new line?

A. That is part of pipe line No. 2.

Q. Then that pipe line No. 2 was not constructed in February last?

A. It was not; but it was under contract to be constructed.

Q. How much of that new pipe line is in National City?

A. I have a statement from the engineer somewhere.

Mr. GIBSON: Well, if he can testify to that, I withdraw the question.

Q. Now, in statement No. 1 you give operating expenses, as per statement to the city, December 31, 1894, at \$22,534.99. Then opposite is marked in lead pencil: Exclusive of interest charged, as shown by statement, \$12,034.99; whereas in the statement that you furnished on December 31st, 1894, the first sum is shown to be inclusive of interest. You may examine the papers.

Mr. WORKS: The whole amount includes interest. Exclusive of that amount it is this amount, you see (referring to paper).

Q. You mean that \$22,534.99, after deducting the interest, would be \$12,034.99; that is what you mean?

A. Yes, sir; the statement to the city is given in detail; the items are set forth.

Q. You find here—take the year 1894—there is an item under head of general expense, \$5,224.83. What does that include?

A. That includes the maintenance of pipe line, the employment of the men in repairing the pipe line, services of the engineer, and material put upon these repairs.

Q. Does it include any of the office expenses at Boston?

135 A. It does not.

Q. To what account are they charged?

A. They are not distributed in the western accounts, and I don't know what they do with them there, unless it is that they go to general expense.

Q. They are not reported to you?

A. No.

Q. Or to the office in this State, at National City?

A. They are not.

Q. The legal expense—I see \$2,500. What does that include?

A. That includes the salaries of our attorneys and other expenses.

Q. Does that include the services of attorneys for the land department as well as the water department?

A. That amount includes the legal services for all of our com

panies. You are referring to the statement I hold in my hand—Exhibit No. 2?

Q. Yes; Exhibit No. 2.

A. The amount is placed there—\$2,500.

Q. You say that covers the attorneys' fees for legal services for all your companies?

A. Yes, sir.

Q. How many companies have you got?

A. Two companies.

Q. That is the land company and the railroad company?

A. Yes.

Q. What is the name of the railroad company?

A. The National City and Otay Railway Company. The services required in that company from the attorneys are very light.

136 Q. But still they advise with you?

A. Yes.

Q. And it is understood that this fee or amount that you expend for legal services covers all services that may be required by the railroad company?

A. It did in that year.

Q. As well as by the land department of the San Diego Land and Town Company?

A. Yes.

Q. How do you segregate the portion of the legal expenses that is properly chargeable to the three different branches—say the railway company is one, the land department is another, and the water department is another?

A. In this statement we have not attempted to segregate it.

Q. I know. But how do you on your books; in other words, is it not charged just the same on your books as it is charged here—so much for general legal expenses?

A. The charge on our book would stand general expense if I remember correctly; that applies to the land company. On the general books of the company a number of these items are not carried out as chargeable against the water department, and that accounts for the smaller charge showing in the annual reports than is shown by this report to the city.

Q. What I want to know is how you apportion it between the land department and the water department, and the land company and the railroad company.

A. On the general books of the company it is not apportioned between the three; it is charged to the general expense of
137 the land company.

Q. And that is charged to the cost of maintenance of the water plant?

A. For the purpose of getting before the trustees all proper charges against the operation of the water department these items were presented in this statement in this way and are different in some respects from the charges as made on our general books.

Q. Then a portion of that, as shown by Exhibit No. 2, should only be charged to the water department?

A. I think so.

Q. Do you know what portion?

A. I would say that one-half charged to the water department would be fair.

Q. Is not there considerable legal business in connection with the land department advising as to contracts, sales, foreclosures, the selling of water rights, and so on?

A. The selling of water rights would be chargeable to the water department, and the legal advice necessary in the land department would be very light, indeed. I would like to put the judge in evidence upon that point.

Q. When you sell land and sell water with it, or the right to use water upon the land, you consult the attorney of the company regarding it, or if he prepares any papers is that all charged to the water company, or would you say it ought to be properly charged to the water company?

A. The sale of land and water is made upon a basis that has been settled heretofore, and it is very rarely necessary to consult
138 our attorneys on the question of land sales; on the question of water it is more frequently.

Q. What does the office expense, set down in Exhibit No. 2 as \$1,500, consist of?

A. It is an estimate of a proper division of the office expenses that are not charged directly to this account on our books. All office expenses here go to general expense, excepting a portion of Mr. Glover's salary.

Q. Who is Mr. Glover?

A. He is the book-keeper in direct charge of the water books and some other books of the company.

Q. This item here of \$1,500. Does it relate wholly to the office expenses of National City?

A. No; it was intended to cover a portion of office expenses east as well.

Q. That is, of Boston?

A. Yes, sir.

Q. The general headquarters of the company?

A. Yes, sir; their expenses there amount to ten or twelve thousand dollars a year generally, and we have simply taken a small portion of it as belonging to this account.

Q. Has this corporation got an office in Kansas? It is a Kansas corporation, is it not?

A. Nominally it has.

Q. It is a Kansas corporation, residing in Boston and doing business at National City?

A. Yes.

Q. Then it maintains three offices, a nominal one in the State of Kansas, at Topeka, I suppose?

139 A. Yes, sir.

Q. And the general headquarters are at Boston?

A. Yes, sir.

Q. And a business office for the business transacted here in connection with its land and water rights at National City and Chula Vista and vicinity—that is, at National City?

A. Yes, sir; I would like to say there is no expense connected with the Kansas office that I have ever known of.

Q. It is not reported to this office?

A. No.

Q. How comes it that they report office expenses of Boston to the National City office and not the general expenses?

A. They do not report it to the National City office except in their annual reports, which they send to stockholders.

Q. Then this item of \$1,500 for 1894 for office expenses at National City is partly made up from that report, is it?

A. Yes.

Q. How much of it?

A. I don't recall just the proportions.

Q. What are the actual office expenses of National City, about?

A. I can't give that offhand. The books are here and I can refer to them, if you like. (Refers to books.) The office expenses are included in the general expenses of the company, so that without a great deal of labor I would not be able to segregate the actual office expenses from some other expenses, but I can give you some items as to the salaries that are paid there.

Q. I don't care for those if you will give us the proportionate amount that is properly chargeable at National City.

140 A. Taking into account simply the salaries as paid in National City, and charging one-third of those to the water department, the amount chargeable for the National City office would be \$1,580, but in the estimate made for this sheet, Exhibit No. 2, we take a smaller proportion than that. I don't recollect just what it was. I know it was made to include a part of the Boston office expense.

Q. That is, the \$1,500 was?

A. Yes.

Q. Now, you say about one-third of that is properly chargeable to the water department?

A. It seems so to me.

Q. Now, how much of that \$1,500 charged is included in the general expense charge of \$5,224.83?

A. None.

Q. Of what does that general expense charge consist of?

A. It consists, as stated before, of the engineer's services, which are not a part of the office expense as charged out; the service of repairs on the pipe line, the material that goes into the repairs of the pipe line.

Q. Just simply the repairs on the pipe line, the material necessary to make the repairs, and the engineer's salary?

A. Yes, sir.

Q. That is all that is included in that?

A. Read that again, please.

Q. (Reporter reads question.)

A. The services of the repairers, of the men employed, and the use of live stock, and such other things as we use for that business.

141 Q. You have under the head of taxes \$2,810.16?

A. Yes.

Q. Is that the tax on the whole plant or part of the plant?

A. On the whole plant.

Q. How much of that is chargeable to the water department?

A. All of it is chargeable to the water department. When I say the whole plant I refer to the whole water plant.

Q. Not to any of the land?

A. Not to any of the lands.

Q. Is the water plant assessed separately from the land?

A. The pipe lines and the dam and the flowage tracts are all assessed separately, so that it is simply a matter of addition to segregate it from the general tax-list to determine just what the tax is on those items.

Q. Is that the way this result was arrived at?

A. It is.

Q. Who made the calculation—you?

A. My clerk, Mr. Brooks.

Q. You have a good deal of land there under cultivation, have you not?

A. We have.

Q. About how many acres?

A. We have in National City—

Q. What are you referring to now?

A. I am referring to the statement furnished this morning, Exhibit No. 4. We have in National City 53 acres cultivated by the company, and outside of National City 803 acres.

Q. Is that the total area you have under cultivation?

A. It is the total area we cultivate and irrigate.

142 Q. What is that land used for, the growth of citrus fruits?

A. The growth of citrus fruits almost exclusively. We have ten or twelve acres of walnuts.

Q. What other land do you cultivate without irrigation?

A. We cultivate land to barley.

Q. How many acres?

A. This year we cultivated some 230 acres, and then we have leased in the neighborhood of 2,500 acres in addition to that in various parts of our property.

Q. What does that yield you?

A. It yields one-sixth of the crop grown upon it.

Q. What does it yield or what does the company derive from its lands cultivated without irrigation and leased for crop purposes, say in dollars?

Mr. WORKS: Objected to as immaterial, irrelevant, and incompetent, and not proper cross-examination.

Mr. GIBSON: It tends to show what knowledge he has of these accounts and what was included within them.

A. I can't say in dollars what it yields.

Q. Estimate it as nearly as you can.

A. About \$2,500.

Q. How much do you derive from the area devoted to the growth of citrus fruits?

Mr. WORKS: Objected to as immaterial, irrelevant, and incompetent, and not proper cross-examination.

A. I haven't any idea what it amounts to; it is changing constantly, increasing this year over last.

Q. Can you give an estimate for last year?

143 A. I cannot.

Q. Can you make up an estimate from your books?

A. I can.

Q. Will you prepare one?

A. I will.

Q. How much of the expense, if any, of the cultivation and care of the land that you have referred to is included under the head of general expense, \$5,224.83, as set forth in Exhibit No. 2?

A. None.

Q. You are certain of that, are you?

A. Yes.

Q. Then the item of general expense referred to does not include all the general expenses of the company at National City and vicinity?

A. It does not; it simply includes the general expense in the water department. There is another general expense on our books which is called general expense. This is general expense, water department.

Q. This account, then, is kept separately?

A. It is.

Q. You have here in Exhibit 2, under the head of water department expense, including salaries and stationery for 1894, the sum of \$2,645.06. What does that include?

A. I would have to examine the general book before I can tell.

Q. It would be the same, then, with regard to all the items set forth under that head from 1888 down, would it?

A. Yes, sir.

Q. And what you have stated respecting the items given for 1894, under the head of maintenance of dam and pipe line, is applicable to the items of the several years preceding it back to and including 1888?

144

A. I think not; it might be applicable to the first item of \$5,224.83.

Q. In what respect does that item differ from the preceding item under the same head?

A. My impression is that in this statement the salary of the engineer and stationery was not charged out here with the \$5,224.83, a separate account would have been made of it, and that the \$5,224.83 does not include the engineer's salary.

Q. That is a mere impression; you don't know that?

A. I don't know it.

Q. Still it may include it?

A. I think it is improbable now, since I have examined it.

Q. All the previous ones do include those items of engineer's salary and stationery account, do they?

A. I am not absolutely certain about that one way or the other.

Q. In Exhibit No. 2, under the head of total expenses, you have added the cost of dam, cost of pipe line, expense of maintenance of pipe line and dam, and water department expenses together, making a total sum of \$1,065,136.97; and according to your last statement you are not sure whether the item of \$16,189.77 therein charged as water department expenses is not already included in the item of \$159,363.29 for expense of maintenance of pipe line and dam?

A. The books must show whether it was or not. My impression is, after examining the thing, that the \$16,189.77 is not a part of the \$159,363.29.

145 Q. You will show by your books that it is not a part of it?

A. I will show by the books whether it is or not.

Q. Can you show that now?

A. Yes; I think we can. (Examines books.) A hasty examination of the books shows that the maintenance of the dam is \$1,689.13 for 1894, and of the pipe line it was \$3,505.03, or total chargeable to maintenance of dam and pipe line under the head of general expense pipe line, \$5,194.16, a difference of thirty dollars and some odd cents from the amount reported in this report, and I also find that under the water department expense account the amount of \$2,656.02 is chargeable, making a difference in the neighborhood of eleven dollars from the amount placed in this report; but it shows conclusively that the item charged under water department expense is not a part of the item charged under maintenance of Sweetwater dam and pipe-line general expense.

Q. Wherein does it differ and what is the difference?

A. In one case the amount charged under maintenance of Sweetwater dam and pipe line is thirty dollars and some odd cents more in the report than the statement to the trustees—that is, a hasty examination of the books which I made shows that—and in the other case the amount reported to the trustees is eleven dollars, about, less than the books show as I examined them.

Q. What I want to know is this: Does the item of \$5,224.83, as shown in Exhibit 2, include any part of the sums going to make up item \$2,645 under water department expenses, including salaries and stationery?

A. It does not.

Q. Of what does that last item consist—\$2,645?

146 A. It consists of the engineer's salary and his assistant and stationery, so far as it has been charged out against the water department. I would like to say that my former testimony to the effect that the \$5,224.83 included the salaries of engineers was incorrect.

Q. Does the engineer give his whole time to the water branch of the business?

A. Practically.

Q. Does he supervise the laying of mains for use upon the private lands of the company that they are irrigating and cultivating?

A. In a general way.

Q. There is no difference made in the charge in the case of his services to the water department on that account?

A. No, because we can't charge these individuals for any advice that he may give in that way.

Q. I mean where he extends water pipes for the use of the company upon the lands that it still owns and has under cultivation and from which it is deriving a revenue.

Mr. WORKS: If it does.

A. In 1894 the extensions made were none practically that I can recollect.

Q. Didn't the company put a good deal of land under cultivation in 1894?

A. They did not.

Q. Did they in 1893?

A. They did.

Q. Who laid out the ground for planting and irrigating?

A. The engineer had general supervision of it.

147 Q. Is it not a fact that he gives his attention to any engineering work that may be necessary for the conduct of the business of the company?

A. It is.

Q. And all his salary is charged up here to the water department?

A. Yes.

Q. Whether he devotes all his time to the business of the water department or not?

A. Yes.

Q. And you say for previous years—that is, previous to 1893 and back to 1888—the items under general expenses, you think, included the salary of the engineer, do you?

A. I do not think so now.

Q. Then the examination of the books respecting the items under the head of 1891 caused you to change your impression as previously given?

A. Yes.

Q. Now, is it not a fact that it has been and is the policy of the company to make the expenditures regarding the plant and cost of maintenance appear as large as possible for the purpose of deriving as large a revenue from the people as possible, based on such a showing as you can make by your books?

A. It is not and never has been.

Q. Would it not appear to be so if you charge the salary of, say, the engineer to the water department when he devotes his time to other branches of the business?

148 A. The amount of deduction that might reasonably be made for that is, in my opinion, a very small item, and does not cover the other items of expense that might properly be charged to that department.

Q. And yet in the case of the attorney it appears from the amounts charged here that only one-third is properly chargeable, according to your testimony?

Mr. WORKS: I guess not.

Q. I mean the legal expenses. Substitute legal expenses for the attorney's fees.

A. It should be one-half instead of one-third.

Q. I have it here one-third.

A. I estimated in charging out the proportion of office expenses in National City one-third of our salaries would be a reasonable charge to make against the water department.

Q. For legal expenses?

A. No.

Q. For the office expenses—yes; I see I had that. What did you estimate in regard to legal expenses?

A. I estimated one-half would be fair.

Q. Then you have charged three times as much for office expenses here—one-half as much for legal expenses and for all the engineer's salary in the statement furnished to the board of trustees known as your Exhibit No. 2. How can you say that it was not the practice of the company at least to make the cost of the plant, or at least the cost of maintenance, appear as large as possible?

149 A. In the first place, the \$1,500 charged out as office expenses is not the total office expense. It is not a third of the office expense in National City, to say nothing of the office expense in Boston, and of the items of attorney's fee and with a very slight deduction, possibly, on account of the engineer there may be some excess charged, but one-third of the total office expense here and in Boston more than offsets those.

Q. But not as set forth in Exhibit 2—this \$1,500 item?

A. The \$1,500 item is not one-third; is hardly one-tenth of the total office expenses in Boston and in National City.

Q. I know, but you say it includes some of the expenses of the Boston office?

A. The estimate was made on that basis, that it would include part of their expenses. Whether that is a true estimate or not is another thing.

Q. The estimate was made by yourself and under your direction and for the company, was it not?

A. It was.

Q. And furnished to the trustees under oath?

A. It was.

Q. The oath of yourself and Mr. Charles D. Lanning in the first instance. Charles D. Lanning was an officer of the company then, was he not?

A. He was treasurer of the company.

Q. In Exhibit No. 2, under the head of receipts, water rents, are

various items set forth opposite the years 1888, 1889, 1890, 1891, 1892, 1893, and 1894, making a total of \$110,904.58. Now, from what source or sources were those water rents derived? Take it for 1894. I suppose what you would say of that year would be true of the preceding years?

150 A. It was derived from the use of water by some of the inhabitants of National City, South Chollas district, Chula Vista, and other portions of the National ranch.

Q. Are we to understand that includes all the receipts for water furnished to all the consumers excepting the company itself?

A. I don't say that. It includes the company's as well—for the use of water upon all our lands.

Q. How do you charge the company for the use of water on these lands?

A. An application is made and filed with the water department, and the charges are extended upon that just the same as if it was from some individual.

Q. At the same rates?

A. At the same rates, and from time to time vouchers are made for this amount and the rent account of the water department is credited.

Q. How much of that revenue, if any, is derived from your railroad company?

A. The charge, as I recollect it, is \$24.20 per month. That is correct within a few cents.

Q. Is that for all the water that they consume or up to a maximum quantity?

A. That is for all the water they consume.

Q. Where do they take their water supply?

A. They take it in National City and Chula Vista and at Sunnyside Station, in the Sweetwater valley.

Q. Under the head of water rights in Exhibit No. 2 it is shown that you sold \$100 worth of water rights in 1893 in National
151 City and \$8,310 worth outside. Now, at what rate was that sold per inch or per acre or upon whatever basis you sold it?

A. It was sold per acre, and for the \$100 within National City we sold it for two acres of land.

Q. That would be \$50 an acre?

A. Yes, sir.

Q. How is it with regard to the \$8,310 item outside?

A. That was at \$50 per acre.

Q. In 1895, you say, outside, \$1,005 worth. At what rate was that sold?

A. \$50 per acre.

Q. That sold at \$50 per acre?

A. Yes, sir.

Q. What do you understand by a water right, or what does the company give as a water right?

Mr. WORKS: That has been answered and explained.

Q. I mean what right does the purchaser acquire as the company understands it?

Mr. WORKS: He explained that.

A. The right to use an acre foot of water per acre per annum.

Q. That is, upon paying in addition to the amount received for the water right an annual rate or rental?

A. Yes, sir.

Q. How much water is the company furnishing to parties to whom it sold land and furnished water without any charge for water right where they sold the water with the land?

A. I think Exhibit 4 will answer the question. In National City we have sold fifty acres of land with water and outside of National City we have sold 714 acres of land with water.

152 Q. Then, where you say, under the head of outside of National City, W. R. acquired by use, is that what you mean, where the company sold the land and water together without making any charge for the water right?

A. No; what I mean by that is, we have supplied water to lands in which we have never had any interest, and the owners of those lands have acquired a water right by the use of water upon it without any payment for water right.

Q. Then there is another abbreviation, under the head of "Under irrigation." Under that head, "Owned by others, ditto marks, W. R., special cont., 34 acres," cont. That is contract, is it not?

A. Yes. It means 15 acres of land lying south of Chula Vista and owned by J. M. Sharp, of Otay, who has a contract for five years—it expires in about two years from now—and 19 acres owned by H. G. Root, I believe, whose land lies on the border of the reservoir, who pumps water from the reservoir and supplies his lands.

Q. What is this Ex-Mission tract, under the head of outside of National City lands? I suppose W. R., wherever it occurs, means water right?

A. Water rights.

Q. What does that mean, land and water right under Ex-Mission contract, 396 acres?

A. We extended a main through the Ex-Mission country in 1889, I believe, and have under that water right 396 acres. Owners of land in the Ex-Mission hold water rights, the right to use water from that pipe line to the extent of 396 acres.

Q. On what terms?

153 A. The pipe line was constructed on an agreement from various land-holders to pay us something under \$7,000 for the construction of the pipe, and we were to supply them with water from that line as long as it lasted.

Q. Did you charge the consumers on the 396 acres for water rights in addition to the \$7,000?

A. No; the \$7,000 was made up by the charge of various sums, ranging from \$20 to \$50 per acre. I think there is a water right for three acres only that was sold at \$50 per acre.

Q. And the remainder under that?

A. Under.

Q. At \$20?

A. At \$20 and \$25; that was not in the nature of a water right, as we now understand it. It was simply a contribution towards the building of the pipe line, and it was made at the time when we were not charging a water right to any one.

Q. Yes; but it is calculated on that basis that you have named from \$20 to \$25 an acre for all excepting three acres and \$50 for those three acres?

A. Yes, sir; the users under this pipe line would be under the necessity of contributing another pipe line when it is out of service.

Q. They keep it up at their own expense?

A. If we continue to supply them with water.

Q. Do you remember what year that contract was made?

A. 1889, I believe.

Q. You have here, under the head of National City in Exhibit No. 4, lands owned by company in 1887, 665 acres; lands
154 owned by others in 1887, 1,857 acres; making a total of 2,542 acres. Now, was that land owned by others subsequently acquired by the company?

A. None of it.

Q. But that is capable of being irrigated from the company's system, is it?

A. It is.

Q. And part of it is now being irrigated?

A. It is.

Q. And some of that land was furnished, was it, with water without charging any water right for it other than the annual rental or rate?

A. It was.

Q. About how much of it?

A. Six hundred and seven acres.

Q. How many acres owned by persons other than those to whom the company sold land that is now being furnished with water?

A. 619 acres.

Q. What portion of the 619 acres was furnished with water by the company without charging a water right therefor?

A. 607.

Q. You were questioned yesterday, in your examination-in-chief, respecting the proportion of the cost of maintenance of the plant that was properly chargeable to National City and the proportion properly chargeable to the territory outside of National City, and you were not prepared to give it then. Can you make that statement now?

A. I am not prepared to make that statement.

155 Q. Will you prepare yourself to answer that question from the books of the company?

A. I will make an estimate. The books of the company are not kept in such a way as to enable me to say definitely what expense is put upon National City and what is put upon the outside.

Q. Then, any estimate you would give would have to be based upon a mere approximation?

A. Yes.

Q. How soon could you give that?

A. I could give it tomorrow.

Q. Have you compared the two ordinances yet—ordinance No. 118 and ordinance No. 112, I think it is—so as to state what items in ordinance No. 118 will make the difference in receipts from what was derived or could have been derived under ordinance No. 112?

A. I am not prepared at present to furnish that comparison.

Q. Will you make that comparison and point it out?

A. I will prepare such a statement if it can be done.

Q. Have you the maps present that will show the amount of land sold by the company and still owned by the company and the irrigated and unirrigated area?

A. I have. It will be necessary, of course, to have our property book present at the same time, because the maps do not distinguish our lands from the other lands.

Q. You have a map, then, have you, that will show the pipe-line system?

A. It is here; yes.

Q. Does it show the system that existed up to February last?

A. Yes, I think very closely.

156 Q. Turn to your books and state the amount derived from the sale of lands made by the company up until the 20th of February last.

Mr. WORKS: Objected to as immaterial, irrelevant, and incompetent, and it is not cross-examination,

A. From what date?

Q. From the beginning.

A. I don't know whether the books will show that or not; I will see. The land-sale book is not here. That statement will take some little time to prepare, but it can be done.

Mr. GIBSON: That will be all for the present with Mr. Boal, until he furnishes the statement he promised.

Redirect by Mr. WORKS:

Q. You have been asked with reference to the items of cost of the plant as set forth in the statements you have furnished. I wish you would state whether the items given are the actual cost of the different improvements to the company.

A. They are.

Q. And with reference to the value of the lands situated within the reservoir site, was a part of that land acquired by condemnation?

A. It was.

Q. How did you fix the value of that land or the expense of acquiring it, by the amount that the company was required to pay for it or some other amount?

A. The amount the company was required to pay for it. It did not include the court expenses necessary to condemn it.

Q. It simply included the actual cost of the land itself to the company?

A. Yes.

157 Q. You have stated that you have a general knowledge of the books of the company. I wish you would explain just what you have to do as general manager with the settlement of bills and accounts that are presented against the company that go into these books and the separation and division of the items into the several accounts that are kept by the company.

A. Vouchers and pay-rolls are prepared for all expenditures in my office, and the distributions are all made in my office, and as those distributions are finally made they go upon the books of the company. The book keeper and assistant treasurer simply transcribes the division of accounts as made by me and places them upon his books.

Q. Well, is it true that those items of account and expenditure all go under your hand for approval?

A. They do.

Q. And do you know whether the books from which these statements have been taken represent the items of expenditure that go under your hand and are approved by you?

A. I know it as fully as any one can know it who does not do it himself. The system followed would ensure this. The vouchers as made and the accounts as distributed in my office go to Boston and are compared by the officers there with the transcript of the treasurer's books as forwarded by the assistant treasurer, and one must agree with the other or the Boston office would discover it.

Q. Have you general knowledge of the fact that the books do represent the actual cost of these different items to the company as they have been approved by you?

158 A. I have such general knowledge.

Q. It appears from your testimony so far that pipe line No. 2 was not actually constructed at the time ordinance No. 118 was adopted. What steps had been taken by the company towards the construction of that pipe line before the adoption of the ordinance?

Mr. GIBSON: It is objected to as incompetent, irrelevant, and immaterial, because the testimony of the witness already shows that it was an expenditure made after the ordinance was adopted.

A. We had entered into a contract with J. D. Hooker & Co., of Los Angeles, for the construction and laying of the pipe and with J. S. Nickerson for the digging of the trench in which the pipe was to be laid.

Q. Do you know whether the board of trustees had knowledge of the fact that you were about to construct that pipe line at the time the ordinance was adopted?

Mr. GIBSON: Same objection.

A. They certainly knew of it.

Q. And had they been informed as to the time within which it would probably be constructed?

Mr. GIBSON: Same objection.

A. The matter had been discussed publicly and it was generally known that the pipe line would be constructed and completed by the beginning of the irrigation season in 1895. Of course, after the damage done to our other pipe line by the flood of January it was apparent to us and may have been to some others that the completion of pipe line No. 2 would be delayed.

Q. Was it the intention of the company at that time to
159 complete the construction of this pipe line before the ordinance adopted in February could take effect the following July?

A. It was fully expected that the pipe line would be completed somewhere near June 1st, which would be one month before the ordinance would take effect.

Q. Do you know whether the board of trustees was so informed before they passed the ordinance?

Mr. GIBSON: Let that all come in under that objection.

Mr. WORKS: Yes, sir.

A. I do not know whether they were officially informed or not, but I think they must have had general knowledge of the fact, because it was a matter of public information.

Q. You have testified with reference to some defective pipe that had to be replaced. What was the amount and size of that pipe?

A. It is known as Abendroth and Root's spiral riveted pipe, and ranged in size from 6 inches in diameter to 24 inches in diameter.

Q. When was it first discovered that that pipe was defective?

A. Immediately after the water was turned on to the system, which was in the early part of 1888.

Q. Are you able to state now what quantity of that pipe there was—what length?

A. If I may refer to a statement which was published respecting our water works I can.

Q. You may if you have it at hand.

A. (Witness consults statement.) Five thousand nine hundred and fifty feet of 24-inch-diameter pipe; 10,029 feet 12-inch-diameter pipe; 4,020 feet 8-inch pipe; 17,870 feet 6-inch pipe.

Q. Was all or only part of that pipe taken up and relaid?

160 A. It was practically all taken up and a portion of it was relaid. There are some 700 feet of 24-inch pipe in use today on E street, Chula Vista.

Q. Have you any means of knowing what the original cost of that pipe was?

A. My recollection is, which I think is correct, about \$32,000.

Q. Have you any means of knowing now what amount of money it cost the company to replace the pipe—what its actual loss was on account of the defect in the pipe?

A. I have not.

Q. That is the pipe you referred to as spiral pipe, is it?

A. Yes, sir.

Q. You have testified with reference to the authorized issue of a million dollars of bonds of the company, termed by you the new bonds. Do you know whether it was the intention of that issue of bonds to take up the old issue in part?

A. As I have been informed—

Mr. GIBSON: That is objected to as irrelevant, incompetent, and immaterial, and it does not appear from the testimony of the witness already given that he knows anything about the disposition of that issue of his own knowledge.

A. A copy of the mortgage which I have examined shows that the one million dollars in bonds were authorized, and it was stated in this mortgage that \$500,000 of the issue should be for the purpose of taking up an issue of \$500,000 made about 1890.

Q. Is that the only knowledge you have on the subject—personal knowledge?

A. My other knowledge is from statements made to me by Mr. Lanning, the treasurer.

161 Mr. WORKS: Then that might as well be stricken out

Mr. GIBSON: We object to its being stricken out.

Q. You have testified that the bonds of the new issue that were given out as collateral security were given to B. P. Cheney, who was formerly a director of the company. Was he a director of the company at the time this transaction took place?

A. He was not.

Q. Was he an officer of any kind of the company?

A. He was not.

Q. You have been asked with reference to the water furnished to the lands of the company. Is there any difference made between the San Diego Land and Town Company and other consumers of water as to the application for the water and the charges that are made for it when it is furnished?

A. There is no difference.

Q. Do you furnish water for more than one railroad company?

A. We do; to three.

Q. What companies?

A. National City and Otay, the Coronado Railroad Company, the California Southern Railroad Company.

Q. Is there any distinction made between the railroad owned by your company and the other railroads in furnishing water?

A. The amount charged to the National City and Otay railroad was upon a careful estimate made as to the quantity of water they used; the Coronado railroad we supply by meter, as they use very little of our water, and the charge to the California Southern is also made upon an estimate of the quantity of water they use; so that there is no difference as to the method of determining the charge to the California Southern and the National City and Otay.

Q. Is there any difference made as to the price charged?

A. No.

Q. You were asked where this water was furnished to the National City and Otay Railroad Company. Is it charged up and credited as being furnished within National City or outside?

A. It is all credited to National City, the greater part of which is necessarily used outside of the city, as our trackage there is greater.

Q. With respect to this Ex-Mission contract, you have stated that certain amounts per acre were paid by parties who were furnished water through that pipe. Was that charge made for water right or so understood between the parties?

A. It was made for the purpose of defraying the expenses of laying the pipe line that passed through their land. It was not made with a view of compensating us for the cost of developing water or bringing it to their lands, and while we have spoken of it as the Ex-Mission water-right contract it is not the same as the water right conveyed to lands in other parts of our system.

Q. The amounts that were agreed to be paid in that case, were they the same as to all of the persons who contributed or were they different?

A. The original subscribers to the fund paid \$20 per acre, with the understanding between them and the company that subsequent users of water from the pipe should pay a charge of \$25 per acre.

Q. Was the amount of land to be supplied with water through that pipe under those terms limited to any fixed amount?

A. The amount of land to be subscribed at \$20 an acre was 163 to be at least 350 acres. The maximum amount that might take water from the pipe was not named.

Q. What, in fact, is the maximum number of acres that have contributed to the expense of the pipe?

A. 396.

Q. Is water being furnished now to that number of acres?

A. No. Some of the original contributors have not taken out water.

Q. Can you state now just what number of acres are actually being furnished with water under that contract?

A. I cannot.

By Mr. GIBSON:

Q. You say with regard to the Ex-Mission contract that the water or water right furnished through the pipe line supplying that tract is not on the same basis that you furnished water to consumers in other parts of your system?

A. As to the water right?

Q. Yes. Well, you also have in your statement here—statement No. 4—a certain amount of acreage set forth that has acquired water rights by use of water from your company. I suppose that means by purchase and use from the company—purchase of water or paying rental for water—or how is it?

A. I think my statement shows the Ex-Mission contract and was

intended by me to mean that the water rights acquired there were subject to the provisions of that contract.

Q. Then you have here 970 acres of land owned by others that acquired water by use. Is there any difference between the right that the owners of the 970 acres acquired to the water and that of the 396 acres in the Ex-Mission tract, acquired by use of 164 water through the Ex-Mission pipe and under that contract?

A. Our construction of the Ex-Mission contract is that it is a limited contract—limited to the life of the pipe. We are under no obligations, as we read it, to continue the supply of water to those lands after that pipe line is worn out.

Q. But have not the owners of the land and the users of water through that pipe the right to maintain it—to repair it and maintain it?

A. The contract does not say so.

Q. If it does not say so, then they will probably have the right. It is a mere matter of construction of the contract, is it not?

A. That is a question that goes into legal matters so far that I am not able to answer. I can only say my understanding of the matter, as explained to us by our present attorneys and former ones, is that it is a limited contract, and that all rights of the users cease and determine—

Q. Yes; but your attorneys have not advised you that where you furnish water to land and receive compensation for furnishing it you can deprive the users of that water of the water at any time you may see fit, or that the pipe line may become unable to serve them?

A. I think I may say our attorneys have advised us that we may make a contract with users of water when they both agree that the contract shall terminate at a given time.

Q. That is not the question.

(Question repeated.)

A. I would like to say that in the absence of a contract we understand that we may not deprive users of water at any time.

Q. And it is upon that understanding that you base the statement in Exhibit No. 4 respecting water rights acquired by use on 165 970 acres?

A. It is on the understanding that the 970 acres have the permanent water right.

Q. What do you mean — “acquired by use”?

A. They have acquired the right to use water from our system by paying us a reasonable charge, a charge that is necessary for the maintenance of the system, including the replacement of the pipes.

Q. Did you mean by that that they have acquired the right by use without having paid you for the so-called water right?

A. Yes; I understand they have acquired the permanent right without having paid us for that right.

Q. That is because you voluntarily furnished the water to them

for certain compensation per annum or per inch without having charged for the water right?

A. Yes.

Q. At the time you made the Ex-Mission contract, so called, to furnish not less than 350 acres with water, the company was not charging for water rights then, was it?

A. They were not.

Q. Do you know how many acres can be irrigated through that pipe?

A. 396 is about the limit that can be served, unless we can secure the transfer of the so-called water right from some of the very high lands to the lower lands. If that could be done we could increase that use twenty five per cent.

Q. The half million dollars of the million-dollar issue of bonds that was pledged to B. P. Cheney as collateral security, do you charge interest on that as well as interest on the \$500,000—

166 I mean to say do you pay interest on that instead of charge?

A. On the \$500,000 bonds?

Q. Yes; on the \$500,000 of bonds of the one-million-dollar issue that is up as collateral security to B. P. Cheney.

A. The bonds that have been issued as security are not entitled to interest charges. They have not been sold. They are simply put up to secure the payment of interest and secure the payment of the money borrowed and its interest. That amount I think I stated this morning to be \$158,000. Upon that \$158,000 we, of course, must pay interest.

Q. Is that the floating indebtedness?

A. Yes.

Q. Entirely?

A. As I understand it.

Q. Not inclusive of the interest on the \$500,000 of bonds of the first issue?

A. A part of the \$158,000 may have been borrowed for the purpose of paying interest on the bond issue—on the \$500,000 in bonds. I can't place the use of all that money.

Q. No interest has been paid on the bonds that were pledged as collateral security.

A. I am not in a position to know anything about it only—

Q. All the information you have is what you get through the statements from Boston?

A. Yes, sir.

Q. There is no record of it kept in your office here?

A. No.

Q. Have they in any of the statements furnished you called for interest on that amount or on those bonds—I mean the bonds
167 up as collateral?

A. They have called for no such interest from National City.

Q. I mean from your office here. Now, with regard to pipe line No. 2 you say that the board of trustees had notice of the company's intention to build and construct that pipe line?

A. They had general knowledge of it, as it was a matter of general information.

Q. Is it not a matter of fact that the construction of that pipe line had been promised to the public out there in National City and the lands that were to be benefitted and served by that pipe line for three years before at different times?

A. There had been statements made that a pipe line would be constructed at one time that I remember in case the city trustees did certain things; but in February, 1895, the construction of pipe line No. 2 had already begun.

Q. You know Mr. Braman?

A. Yes, sir.

Q. What connection did he have with your company in 1893? Was he not president of the company?

A. He was president of our company at one time, and I think his time expired in May, 1893.

Q. He remained a director after that, didn't he?

A. He did not.

Q. Didn't he in 1893 promise the people of National City and vicinity that that pipe would be constructed within a very short period?

A. It was earlier than 1893 that Mr. Braman made a sort of general statement to the effect that a pipe line would be constructed.

It may have been 1893, but my recollection is that it was
168 earlier than that.

Q. Then at that period, or, if earlier, until they actually commenced the construction of the pipe, it was promised at different times by your company or by different representatives of the company?

A. I don't know as to that. I know this: We have known and have perhaps said that the construction of the pipe line was necessary to serve those lands. Whether we made any positive promises to do it or not I am not prepared to say. I should say not. We have no authority to do that here.

Q. Mr. Braman would have had the authority while he was president of the company, would he not?

A. He would have.

Q. He came out here to look into its affairs and inquire into its necessities?

A. Yes, sir.

Q. And was it not upon one of such visits that he made this statement referred to?

A. Whatever statement he made was made at that time. I think you will find Mr. Braman's statements were rather indefinite in tone. They may have left the impression that the company would construct the pipe line.

Q. That is, he may have attempted to give the impression without making the promise. Is that it?

(No answer.)

Q. I hand you a letter and ask you in whose handwriting does it appear to be.

A. It appears to be in the handwriting of Mr. Dwight Braman, at one time president of our company.

Q. Have you ever seen that letter before?

169 A. I don't recall that I ever have.

Q. Did you not transmit that letter on behalf of Mr. Braman, president of your company, to the board of trustees of National City?

A. I may have, but I do not recall that I did. It is quite probable that I did, but I don't recall it.

Mr. GIBSON: I now offer the letter in evidence in connection with the cross-examination of the witness on the stand and ask to have it identified as Defendants' Exhibit A. It is dated November 23, 1893, and signed Dwight Braman, president.

Q. With regard to the spiral pipe line that you testified to, in giving the lengths and diameters of the different sections of it from what did you refresh your memory?

A. From the report on the construction of the Sweetwater dam by James D. Schuyler.

Q. You referred to page 215, did you not?

A. Yes.

Q. The explanatory matter respecting the use of such pipe on the same page and the top part of the following one, page 216, we would like to have you read in connection with what you have said.

Mr. WORKS: Objected to as immaterial, irrelevant, and incompetent.

A. (Witness reads:) "The introduction of spiral pipe into the system was unfortunate, as it does not stand the test of transportation across the continent and will have to be taken up and specially treated to make it water-tight. It will answer very well for sub-irrigation if it could be properly controlled, but as it is laid
170 in streets and avenues, that system is not desirable or conducive to comfort in travelling."

Q. Is that the language of the company's engineer? I mean the man who was engineer at that time.

A. It is.

Q. Who was he?

A. James D. Schuyler.

Q. Is that the report made to the company?

A. It was not; it was a paper written by him to be read at the American Society of Civil Engineers.

Q. But the company found it to be a fact, as stated in there, that the selection of that spiral pipe was an unfortunate one for the company?

A. It did.

By Mr. WORKS:

Q. With reference to the letter of Mr. Braman, had that any reference to the pipe line that has finally been constructed by the company?

A. It had not.

Q. Was that pipe line that was under discussion then along the same line or a different one from the one now constructed?

A. The pipe line that was under discussion at that time was a pipe line from the 30-inch main in Sweetwater valley north to a connection with 16th street.

Q. What would have been the cost of that pipe line as compared with the one that was actually constructed?

A. From twenty to twenty-four thousand dollars.

Q. You mean that that would be the total cost of it?

A. It would as estimated at that time.

171 Q. And the one that has been constructed, denominated No. 2, costs \$100,000?

A. The pipe line itself will cost over \$65,000. The other expenditures this year will run up to the neighborhood of \$100,000.

By Mr. GIBSON:

Q. Was that pipe line referred to in that letter of President Braman's ever constructed?

A. It was not.

Q. Then it appears there were frequent promises of improvements made there that were not kept?

A. As I read that letter it was an expression of a desire on the part of the company to extend its pipe line from time to time as it found itself able.

By Mr. WORKS:

Q. Was the construction of the pipe line referred to in the letter of Mr. Braman necessary after the construction of pipe line No. 2?

A. It was not, nor desirable.

By Mr. GIBSON:

Q. How far did it take the place of it?

A. How far did pipe line No. 2 take the place of the other?

Q. Yes.

A. It supplied all that the line referred to, the line under contemplation in 1893, could, and very much more.

Hearing adjourned until 9 o'clock a. m., October 2, 1895.

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WEDNESDAY, *October 2nd*, 1895.

H. N. SAVAGE, being called as a witness for the complainant and being duly sworn by the special examiner to testify the truth, the whole truth, and nothing but the truth in this cause, now testifies as follows:

By Mr. WORKS:

Q. State your name, age, occupation, and place of residence.

A. H. N. Savage; 34; civil engineer; National City, California.

Q. How, if at all, are you connected with the complainant, The San Diego Land and Town Company?

A. I am employed by the San Diego Land and Town Company as civil and hydraulic engineer.

Q. How long have you been the engineer of the company, Mr. Savage?

A. Since January 10th, 1891.

Q. What has been the nature and extent of your employment and the services necessary for you to perform for the company?

A. First, in making investigations and reports on the company's water system and constructed and possible water systems in this vicinity, and subsequently in charge of the Sweetwater system, as engineer, operating the system.

Q. What is your employment and what services do you perform in operating the system?

A. The physical portion of the system is under my sole supervision, and I have taken largely since July, 1891, the applications for service and for use.

Q. Who has charge and supervision of the work of keeping the system in repair and making improvements and replacements?

173 Q. Are you familiar with the entire system of the company?

A. I am, sir.

Q. Do you know the different kinds of pipe that was used and sizes, and where those pipes are located?

A. I do.

Q. Did you hear the testimony of Mr. Boal with reference to the affairs of the company given yesterday and day before?

A. I did.

Q. Did you have anything to do with the preparation of the statement with reference to the real estate under your system?

A. I did. I assisted in compiling it.

Q. I now show you Complainant's Exhibit No. 4, testified about by Mr. Boal, and ask you if you know whether or not that is a correct statement of the matters contained in it; and, if so, whether it is correct or not.

A. It is correct, to the best of my knowledge and belief.

Q. Is that one of the statements that you helped to make?

A. It is.

Q. Do you know how the amounts of land and numbers of acres and town lots and the ownership of each, whether by the company or other persons, were obtained?

A. I do. It was obtained from the land and property book of the land and town company.

Q. Did any map made by the company aid in arriving at the amount of land that was under the system?

A. It did; the contour map owned by the company.

Q. What did you take as the contour line below which lands could be served by the system?

174 A. In National City the 140-foot contour line, and nearer the Sweetwater dam a higher contour.

Q. For what reason was the higher contour line taken near the Sweetwater dam?

A. Because of the company's limiting its ability to deliver water to the hydraulic grade line of the pipe line that was recently constructed.

Q. You may state whether the 140-ft. contour line is the proper line to be taken as the highest elevation at which water could be served by the company from the system.

A. I think it is as high an elevation as the company should undertake to supply water from its system.

Q. Has it supplied water at a higher elevation?

A. It has, and has attempted to.

Q. What has been the result of the effort to supply lands at a higher elevation?

A. We have experienced great difficulty in supplying higher lands, and at times it has been impossible to deliver water to them.

Q. Can the company safely undertake to deliver water at a higher elevation than the contour line you have stated?

A. It cannot.

Q. Can it be delivered above that elevation without unreasonable expense?

A. It cannot.

Q. From what source does the company derive its water supply?

A. From a storage reservoir impounding the flood waters of a drainage basin.

175 Q. Where is the storage dam situated?

A. In quarter section 3 of the National ranch.

Q. How far from the coast?

A. Six or seven miles.

Q. Is the reservoir fed by any living stream?

A. It is not.

Q. Or does it depend wholly upon the flood waters?

A. It depends wholly upon the flood waters.

Q. Is there any time of the year when there is any flowage of water into the reservoir except in case of rains?

A. There is no time except during rains and the run off from those rains.

Q. During how much of the year of an average year is there any actual flowage into the reservoir, as nearly as you can tell?

A. I estimate about one-half.

Q. What amount of water can be stored in the reservoir, giving it in inches?

A. About 1,200 inches constant flow.

Q. Is there any flowage of water from the streams into the reservoir during what is usually termed the irrigation season?

A. Very little.

Q. Can you give any idea as to the extent or quantity of the water that is supplied to the reservoir during the irrigating season?

A. I could by investigation determine somewhat approximately, but it is a very small quantity, some years none flowing at the beginning or end of the season.

Q. Could you give any idea as to the number of inches
176 that would be supplied to the reservoir in that way during the irrigation season?

A. I would rather not estimate, as the quantity is so small.

Q. Would there be any appreciable addition to the supply of the reservoir during that season over and above the 1,200 inches that you have stated as the storage capacity of the reservoir?

A. There would not.

Q. Are you able to tell from the past experiences of the company and your own observation what quantity of land can be furnished with water from the system with the supply that can be obtained?

A. Basing our estimate on the use in the past and the dry seasons, we cannot expect to supply surely much over 6,000 acres with the reasonable accompanying domestic requirements.

Q. What amount of land in acres is there under the system below the 140-foot contour line?

A. May I ask you if you intend to include lands in National City and outside?

Q. Yes; all; the whole.

A. Between nine and ten thousand acres.

Q. Then, if I understand you, the system really covers something upwards of 3,000 acres of land that cannot be supplied with the quantity of water that the company is able to store and furnish?

A. It cannot with its present system.

Q. What quantity of water do you estimate it to be necessary for safety to hold over in the reservoir from one year to another?

A. From a wet season we expect to hold over as an emergency for a dry season succeeding from forty to fifty per cent. of the capacity of the reservoir.

Q. Will you explain why you regard that as necessary?

177 A. Can I consult my notes for these things?

Q. Yes; certainly.

A. Because in some seasons of little rainfall we are unable to store but very little water from the drainage basin.

Q. Are you able to state now what is the smallest amount that you have been able to store in any one year?

A. In the winter season of 1893 and 1894 the yield from the drainage basin which we stored was less than one-half billion gallons.

Q. How much would that be as compared to the capacity of the reservoir?

A. Less than one-twelfth.

Q. Are there any other years since you became the civil engineer of the company when you succeeded in storing less than fifty per cent. of the capacity of the reservoir?

A. There was.

Q. What year?

A. In the rain season of 1891 and 1892.

Mr. GIBSON: That is the winter of those two years?

WITNESS: Yes, sir.

Q. What was the amount of water stored during that season?

A. Two billion gallons, approximately.

Q. And the capacity of your reservoir is what?

A. Six billion gallons.

Q. Any other years when you stored less than the actual capacity of the reservoir?

A. Not since I became connected with the company.

Q. Well, do you know with reference to former years?

A. I have a table here, compiled by myself, which shows
178 very closely what the storage would have been and what it would have been possible to impound since the beginning of rainfall data in San Diego, in 1871.

Q. From what sources was that compilation made?

A. That was made from observations of rainfall made by the Government's agents in San Diego and based on a comparative increasing rainfall due to an increasing elevation from this point to the highest point of our water-shed.

Q. When did you make up that statement?

A. I made up that statement in 1894.

Q. What are you able to say from that investigation as to the number of years covering that time when the rainfall would not have been sufficient to furnish you sufficient water to supply fifty per cent. of the capacity of the reservoir?

Mr. GIBSON: We object to it as being incompetent, irrelevant, and immaterial.

A. There were eight years in which it would not.

Mr. PALMER: Since 1871?

WITNESS: Yes; since 1871, inclusive.

Q. I wish you would explain as fully as you can how you arrived at that conclusion and how this table you refer to is made up.

A. The results since 1887 are obtained from measurements taken at the Sweetwater dam, and the results previous to 1887 are obtained by comparing the rainfall at Sweetwater dam with the rainfall taken by the Government's weather bureau in San Diego. This comparison gives a ratio; then, using the San Diego rainfall as a base, the probable rainfall at Sweetwater dam is obtained; then a table or sketch is made, on which billion gallons of yield of
179 drainage basin is platted to scale on one axis and inches rainfall platted on another axis, and a curve drawn through these points, from which we can interpolate the probable yield in billions gallons from this water-shed for seasons of rainfall that vary slightly from those recorded at Sweetwater dam and the quantity of water or yield measured in gallons.

Q. If you take the quantity of rainfall at San Diego as shown by the Government's measurements as your basis, how do you arrive at the increased rainfall, if any, at a higher elevation?

A. We have observations at Campo, observations at Julian, also observations at Descanso, and from a long series of observations taken throughout the coast on the west side of the mountains there is found to be a very accurate proportional increase of rainfall due to increase of elevation, six-tenths of an inch increase of rainfall per 100 feet increase in elevation.

Q. What is the increase of elevation from San Diego to the Sweetwater dam?

A. It is a little over 200 feet.

Q. Do you regard that as a reliable and safe way of arriving at the rainfall at that point?

A. I consider it so. It is so accepted by the Government and it is borne out by observations.

Q. Are you able to state with any degree of accuracy what the probable loss of water from evaporation is after its storage in the reservoir?

A. We have an evaporometer at the dam, and also we have a pan that was maintained for several years, the evaporometer being in operation at the present time, and being continued from which we ascertained the evaporation, and have since the completion of the dam.

180 Q. How is that computed; by way of percentage?

A. By inches, actual inches, depth of water evaporated.

Q. Well, you may state what has been the loss by evaporation.

A.—

In 1889, 57.54 inches.

1890, 58.97 "

1891, 58.25 "

1892, 59.53 "

1893, 48.83 "

1894, 45.70 "

The records for this year have not been compiled and will not be until December unless desired.

Q. Can you inform us from that table what has been the percentage of loss from evaporation?

A. Not without computing the quantities, because the evaporation is so much in depth regardless of the area. When our reservoir is full we have 700 acres, and when it is down to the last end of a dry year, as it was last year, to fifty something, the area is only about two thirds that quantity of water. I calculated carefully by the week from that, and the wastes about the dam and the lowering of the gauge ascertained the probable quantity of water we were using by delivering to our customers every year; that calculation also entered into making up this table of yield of the drainage basin.

Q. Then you are not able to state at this time what quantity or percentage of the water that you store is lost by evaporation?

A. No; I am not, as it would be a different quantity of water every year, depending on the fullness of the reservoir and comparative area exposed.

Q. If not able to state accurately with reference to that matter, can you give us any idea as to the extent of the loss?

181 A. I would prefer to take the necessary time and compute it and bring in my answer, which would be more satisfactory to both parties.

Mr. WORKS: Well, we will pass that.

Q. I will ask you now to explain the pipe system of the company,

giving the different pipe lines, where they are located, their size, their quality, elevation, and their connection with National City.

A. May I refer to the map?

Q. Yes; you may refer to the map.

Mr. GIBSON: First, we would like to know whether the limits of National City are defined on that map.

WITNESS: They are defined or may be. We have another one showing the exact limits of National City, which we will exhibit later on, with its detailed pipe system.

Mr. GIBSON: You can mark the outlines there if it becomes necessary?

WITNESS: Yes, sir.

Mr. GIBSON: I will ask you a few preliminary questions to identify the map.

By Mr. GIBSON:

Q. To what map are you about to refer, Mr. Savage?

A. I am referring to topographical and pipe-line map of the National ranch, inclusive of National City, and including Horton's purchase of Ex-Mission, prepared under my personal supervision.

Q. Prepared under your supervision. Please give the scales.

A. The scale is 1,000 feet to the inch.

Q. Are the exterior lines of National City designated on that map?

182 A. They are not brought out prominently, but may be so.

Q. Well, you may designate the lines. I see you have red there.

A. The pipe lines are shown in red.

Q. Have you a different colored pencil with you with which you could indicate the exterior lines of National City?

A. No; but a black pencil will do that, a soft one. (Witness procures colored pencil and designates lines.)

Q. In what color have you designated those exterior lines?

A. In green.

Q. (Last question by Judge Works read by the reporter.)

A. The Sweetwater dam is located in quarter section three, near the east boundary line of the National ranch, the top of the dam being at an elevation of 215 feet above seal level. The main pipe line starting from this dam with an elevation of 145 feet is 36 inches in diameter, constructed of wrought-iron plates, thickness No. 7, B. W. G., the longitudinal seams being double rivetted and the round seams single rivetted, the 36-inch line being 1,500 feet in length, thence dividing into two 30-inch pipe lines, one of them being used as a blow-off to supplement the wasteway and the other one continuing 29,600 feet in a southwesterly direction along the Sweetwater valley to Chula Vista, terminating at the corner of Fourth avenue and E streets at an elevation of 90 feet. This pipe is composed of wrought-iron plates, longitudinal seams double rivetted, round seams single rivetted, the plates having a thickness varying from No. 10, B. W. G., to No. 8, B. W. G., increasing in

183 thickness with the pressure. Do you want me to say anything about the quality of this pipe as I go along, or is that an after-consideration?

Q. The quality of the pipe is asked for in the question.

A. The foregoing 36 and 30 inch pipe line has proved remarkably good, having an average of not to exceed two leaks per year since completion up to January, 1895. At the terminus of this line at the corner of Fourth avenue and E streets, Chula Vista, the pipe connects with three smaller mains, one of them 24 inches in diameter, spiral pipe, extending westerly on E street about 500 feet, then continuing wrought-iron rivetted pipe three-eighths of a mile, thence reducing to 18-inch rivetted pipe, continuing west one-half mile; thence running north on National avenue, entering National City. The spiral pipe during 1891, '92, and a portion of '93 gave us considerable trouble from leaks, one section having to be replaced entirely, since which time we have had almost no trouble with it. The 24-inch wrought-iron pipe has a thickness of No. 11, B. W. G., and has had very few leaks. The 18-inch pipe has given us little trouble and is in good condition. One-half mile east of the terminus of this 30-inch main there is a 6-inch spiral lateral pipe, extending south on Sixth avenue one-half mile. This pipe is subject to frequent leaks. One-quarter mile west on Fifth avenue a 6-inch kalamein tube pipe extends from this 30-inch main south on Fifth avenue a little over three miles, to the south boundary line of National ranch. The pipe line is in good condition.

On Fourth avenue, at the terminus of this line, there was originally a 24-inch spiral pipe laid south as the main feeder of the Chula Vista distribution system. This pipe proved defective, was abandoned, and a temporary 12 inch pipe was in use January 1st, 1895, extending south on Fourth avenue; the first one-half

184 mile of this pipe was lap-welded casing No. 4 or 5, B. W. G., continuing south one mile, 12-inch-diameter kalamein tube pipe.

On the next avenue west, Third avenue, Chula Vista, a six-inch kalamein tube pipe extends from the 24 inch main south on Third avenue, a little over three miles, to the south boundary line of the ranch. This pipe is in good condition.

On Second avenue, Chula Vista, one-quarter mile west of the last entry, 6-inch kalamein tube pipe extends south about three miles to the south boundary line of the ranch; pipe line in good condition.

On First avenue, Chula Vista, one-quarter mile east of the last, a 6-inch kalamein tube pipe extends south about three miles to the south boundary line of the ranch; pipe line in good condition.

On National avenue, one-quarter mile west of the last, a 6-inch kalamein tube pipe extends south about three miles to the south boundary line of the ranch; pipe line in good condition.

There is extending from National avenue west on E street one-half mile of spiral pipe, which, proving defective, was abandoned.

On G street, Chula Vista, a 6-inch kalamein tube pipe extends

west from National avenue about 1,700 feet; pipe line in good condition.

On First street, Chula Vista, there is a cross-main extending east and west across the tract, connecting all the pipe lines on the foregoing avenues. (To Mr. Works:) This cross-line, part of it, is 12-inch and part 6. Do you want the details of it?

185 Mr. WORKS: Yes; I suppose so.

WITNESS: This pipe line from Fourth avenue running easterly one-half mile, 12 inches diameter kalamein tube pipe; pipe in good condition.

And starting from the same point, Fourth avenue, running west, 12 inch- diameter kalamein tube pipe three-quarters of a mile; pipe line in good condition.

Thence continuing west to National avenue, one-quarter mile, 6-inch kalamein pipe in good condition; thence continuing west about 1,500 feet; pipe line in good condition.

On Third street, Chula Vista, a 6-inch kalamein pipe extends west about 2,000 feet; pipe line in good condition.

On Third street, Chula Vista, a 6-inch lap-welded casing pipe runs west from Second avenue to First avenue, one-quarter mile; pipe line in good condition.

Thence continuing an 8-inch pipe line between First avenue and National avenue on Fifth street; pipe line in good condition.

Thence continuing west on Fifth street about one half mile of 6-inch kalamein tube pipe in good condition.

There is also on Seventh street about 1,500 feet of kalamein tube pipe extending west from National avenue.

On the north side of the 30-inch main throughout its length between the dam and Chula Vista there are short laterals of kalamein tube pipe 4 and 6 inch diameter, the first of which nearest the dam supplies water in quarter section 23; the next on the south side supplies water in quarter sections 22 and 5. This pipe starts from

the main 8 inches diameter spiral pipe and decreases to 6
186 inches diameter spiral pipe, and another decreases to 4 inches tube pipe, spiral pipe having frequent leaks, the tube pipe being in good condition, the total length of this last pipe being about three-fourths of a mile.

Another lateral extends north from the 30 inch main, supplying water in quarter sections 30 and 31, one-quarter mile in length. Another lateral extends south, supplying water in quarter sections 31, 22, and 32, about three-quarters of a mile in length; kalamein tube pipe in good condition. There are two or three other 4-inch laterals extending north and south from this line with a combined length of about three-quarters of a mile.

There is extending from this 30-inch main in quarter section 111 a total length of about a mile and a half of 6 inch, reducing to 4-inch, kalamein tube pipe.

A portion of this pipe line running through the bottom land adjoining the Sweetwater river is subject to frequent leaks, due to the action of the acids in the soil or the alkali in the soil.

On Fourth avenue, Chula Vista, a 6-inch spiral pipe extends north from the terminus of the 30-inch main one-quarter mile.

Pipe line in bad condition; subject to very frequent leaks.

Thence reducing to 4-inch kalamein tube pipe extending north one-quarter mile and entering National City.

On Third avenue, Chula Vista, a 6-inch kalamein tube pipe extends north about 1,000 feet; pipe line in good condition.

On Second avenue, Chula Vista, a 6-inch kalamein tube pipe extends north one-half mile, entering National City; pipe line in good condition except the last 2,000 feet before it enters National City. Here it, being subject to the action of the soil, is subject to frequent leaks.

187 There is a 6-inch kalamein tube pipe on D street, Chula Vista, connecting the 6-inch-pipe lines on Second and Fourth avenues; one-half mile of 6-inch kalamein pipe in good condition. (To Mr. Works:) Now, there is a lot of 4-inch line——

Mr. WORKS: I do not think it is necessary to go into all those little lines in National City if you state generally what they amount to. There are a lot of those little pipe lines there, and it would take up time to no purpose.

The WITNESS: Well, I can measure those there. If he wants them I will measure them up.

Mr. GIBSON: Please give the mains, and then you can give the combined length of the 4 inch and 6-inch pipe.

WITNESS: All right. In general the condition of the pipe lines outside of National City, the rivetted wrought-iron pipe, is in first-class condition. The kalamein tube pipe is in good condition, except where affected by bottom land and an occasional place in the higher lands where there seem to be elements in the soil injurious to the pipe.

There are three main pipe lines entering National City. The larger and main one, on National avenue, runs northerly two miles and 600 feet. This is an 18-inch diameter wrought-iron riveted pipe, with a thickness of from No. 10, B. W. G., to No. 12, B. W. G., varying with the pressure. This pipe is laid across marsh land in three different places, and has been seriously affected by the action of the elements in this land, and is subject in these three places to very frequent leaks. In the portions where it passes through this marsh land it was covered with a three or four inch coat of concrete in anticipation of the effect of the soil, but the concrete did not
188 succeed in serving the purpose for which it was intended.

From the terminus of this 18-inch line it reduces to 12 inch, and extends about 2,000 feet north on National avenue to near the north boundary line of the city limits, thence east about 2,300 feet, thence leaving the city limits and running north. This last-named 12-inch pipe was originally spiral pipe and was proven very defective. Short sections were replaced up to the fall of 1894, since which time several hundred feet have been replaced. The six-inch kalamein tube pipe which enters National City at the south boundary line on Second avenue, Chula Vista, which is commonly known as Highland avenue in National City, extends northerly about two

miles and a half to a point near the north boundary line of the city limits. The 4-inch pipe which enters the National City limits from Fourth avenue, Chula Vista, at the southeast corner of quarter section 135, runs east about one-quarter mile in National City. There is on Fourth street, National City, a cross-pipe line running east and west, about two miles in length, mostly 12-inch kalamein tube pipe, the balance being 6-inch kalamein tube pipe. This kalamein tube pipe, also that on Highland avenue, is in good condition, except where laid through low and marshy lands, where it is badly affected and liable to frequent leaks. On Sixteenth street, National City, another cross-line extends east and west a distance of about two miles and a quarter. A portion of this pipe line is 12-inch kalamein tube and in good condition, except where it crosses National avenue in marshy lands, the balance of the pipe line being 13-inch riveted steel pipe, having a thickness of about No. 12, B. W. G. This riveted steel pipe is in very good condition indeed.

Another cross-line running east and west along Eighth street or Paradise valley, National City, a distance of about two miles. A short portion of this pipe, about 600 feet, was originally 8-inch spiral, but, proving defective, was taken out in sections, and is now wholly replaced by 6-inch tube pipe. The 6-inch tube pipe throughout is in good condition. In addition to these above-described lines in National City, there are numerous smaller pipe lines running along the avenues and streets as laterals to supply domestic requirements.

Q. Now, will you state, Mr. Savage, with what main line of pipe those cross-sections of pipe in National City connect?

A. They connect with the first-named two main pipes, one 18 inches diameter, the other 6, and the lateral pipes mostly connect with the two 12-inch diameter cross-pipes on Sixteenth street and 24th street.

Q. Have you in the answer you have given as to the pipe system included what is known as pipe line No. 2?

A. No, sir.

Q. When was pipe line No. 2 constructed?

A. Bids were received for the construction of pipe line No. 2 in September, 1894. The contract was awarded about 30 days subsequently, and pipe-laying was begun on pipe line No. 2 in the early part of December, 1894.

Q. Do you know whether the board of trustees of National City knew of the action that was being taken with reference to this pipe line at the time the ordinance No. 118 was adopted?

Mr. GIBSON: Objected to as incompetent, irrelevant, and immaterial.

A. I discussed the construction of the pipe line No. 2 with some members of the board of trustees.

190 Q. Prior to that time?

A. Prior to that time.

Q. You may state now of what that pipe line, No. 2, and its connections consist and the quality of the pipe and its size.

Mr. GIBSON: Objected to on the ground that it is incompetent, irrelevant, and immaterial, and on the ground that the evidence already in shows that it was constructed subsequently to the 20th day of February, 1895.

A. Pipe line No. 2 starts from the Sweetwater dam with an independent in-take 24 inches in diameter and approximately 29,600 feet in length, extending westerly and northwesterly to a connection with the National City distribution system in quarter section 107. It is constructed on a hydraulic grade line starting from the dam with an elevation of 165 feet and terminating in National City with an elevation of 145 feet. The last half mile in National City is 20 inches in diameter, the reduction in diameter being made at a point on 24th street prolonged east in anticipation of the construction of another connection with the National City distribution system. This pipe is composed of steel plates, longitudinal seams, double riveted; round seams, single riveted, and is considered to be equal or superior to any pipe line constructed of steel.

Q. How far does that pipe line No. 2 extend into National City?

A. A little over one mile of this pipe line is within the limits of National City.

Q. You say that pipe line connects with the distributing system within National City?

A. It does, sir.

Q. What was the necessity, if any, for the construction of
191 that pipe line No. 2?

Mr. GIBSON: Objected to on the ground that it is irrelevant, incompetent, and immaterial.

A. The construction of an additional supply pipe was necessary to enable us to supply water to water-takers in the higher lands, our system having been overtaxed.

Q. Was the construction of the pipe line and its connections necessary in order to furnish the supply of water that could be stored and furnished by the company?

Mr. GIBSON: The same objection.

A. It was.

Mr. WORKS: You may let it be understood, if you desire, Judge Gibson, that all these matters with reference to pipe line No. 2 are objected to.

Mr. GIBSON: All right, on the grounds already stated.

Q. Speaking generally, you may state whether the kind and quality of pipe used in constructing pipe line No. 1 and the system connected with it was proper pipe to be used for the purpose and of good quality.

A. The wrought-iron riveted pipe and the kalamein tube pipe were of good quality and were in accordance with good engineering. The spiral pipe proved defective and unsuitable for the purposes for which it was intended, due, I think, largely to injuries received in transportation and to not being laid properly, as we have at the

present time several hundred feet of that pipe in operation that is giving good service, although it is not as good quality pipe as the other by considerable.

Q. Were the defects in the spiral pipe such as could be
192 easily discovered before laying the pipe?

A. As brought out by use it is very easy to point out defects. Had other pipe been obtainable I would not have used that class of pipe.

Q. Do you know what addition of cost has resulted to the company in the construction of its plant on account of the use of that defective pipe?

A. That would be a matter of estimate.

Q. Have you made any estimate of it?

A. I have not; no, sir. I could make such.

Q. I wish you would.

A. I will.

Q. You have spoken about leaks in the other kinds of pipe in different places. Has that been the result of the use of defective pipes or has it been the result of the peculiarity of the soil through which the pipe passes?

A. I think it is very largely due to the character of the soil.

Q. What is the character of the soil that renders it injurious to the pipe?

A. It is a blue marsh mud that seems to attack the pipe and to destroy it by eating holes in it.

Q. Was any part of the spiral pipe in such localities?

A. No; I do not think so; no considerable amount, at any rate.

Q. Well, aside from the pipe laid in the kind of soil you have mentioned, has the pipe line, with the exception of the spiral pipe, proved by use to be of good quality?

A. Yes, sir.

Q. Are you able to state, from your experience and infor-
193 mation, what is the percentage of the depreciation in a pipe line of that kind, or within what length of time pipe of good quality of the kind used there would have to be replaced?

A. The results of my investigations lead me to conclude that steel pipe of average diameters, 6 to 24 inches, when constructed of wrought iron or steel with a thickness of from 10 to 14 B. W. G., may be expected to last on an average of sixteen or seventeen years, but depending wholly on the protective coating given the pipe, the care with which this is preserved, and the characteristics of the soil in which it is laid.

Q. Aside from these marsh lands that you speak of, what has been your observation as to the effect generally of the soil in that locality upon pipe as compared with other soils elsewhere?

A. The soil in this section where our pipe is laid seems to be very injurious to steel pipes and wrought-iron pipes, certain portions of the mesa lands being nearly as destructive to pipe as some of the marsh lands.

Q. Are you able to explain why that is so?

A. Not from chemical analysis; only from general observation.

Q. You think in that soil the kinds of pipe you have mentioned would be likely to last and be serviceable for sixteen years?

A. I do not think it would be reasonable to expect them to last more than that.

Q. What part did you take, if any, in making up the figures and the estimates of the cost of the plant, the dam and pipe lines, and various portions of the system that have been offered in evidence here as Complainant's Exhibit No. 1?

A. That was largely clerical work, compiling information from our books. I advised with our general manager as to the proper costs and amounts to be made up in this.

Q. Were there any estimates made there in which you took any part with reference to the plant?

A. I took part in fixing the value of lot 1 and also that portion of quarter section 3, and the cost of pipe line No. 2 was made up wholly from my estimates. The repairs on the Sweetwater dam and pipe lines made necessary by the flood was prepared from estimates largely made by myself in accordance with my plans.

Q. With reference to ascertaining the cost of the pipe line within National City, did you have anything to do with that?

A. I did, sir. I made it up, and it was the basis used to determine the cost of our pipe line within the limits of National City.

Q. You may state how you ascertained the cost of the pipe line within National City.

A. That portion of the pipe line No. 2 within National City, the cost was ascertained by taking the price per lineal foot bid by our contractors, and the cost of earth-work was reached by taking the price per cubic yard bid by our contractors, and the quantities were estimated from the profile of the line and the location as made.

Q. You may state how nearly that estimate tallied with the actual cost of the pipe line when constructed.

A. That portion of it has not been segregated, but the cost of the pipe line, exclusive of the extra cost made necessary by the flood, will vary very little; I do not think to exceed one per cent., and I do not know on which side that would be.

Q. With reference to the improvement made in the pipe line near the dam and made necessary by the flood, will you explain what the nature of the damage to the pipe line was?

A. The pipe line near the dam was undermined. The second 400 feet was washed out entirely in sections of from practically no size to fifty and one hundred feet, the ground underneath the pipe line being washed out many feet in depth, the fourth 400 feet being also wrecked; that portion of the 36-inch pipe not washed away was seriously damaged, the first third of a mile of the 30-inch pipe being undermined and broken into sections of varying lengths.

Q. What repairs were necessary in order to make good the injury that was done to the pipe line by the flood?

A. It was necessary to repair that portion damaged that could be repaired and replace the balance with new pipe, and also, to prevent another similar damage, the location of the pipe was changed.

Q. What was the size of the pipe line at that point?

A. 36 inches in diameter and 30 inches in diameter.

Q. What number of feet of pipe had to be replaced with new?

A. I do not recall the exact quantity. It was about four or five hundred feet of 36-inch and fifty feet of 30-inch.

Further hearing continued until 1.30 o'clock p. m.

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Afternoon session.

H. N. SAVAGE recalled.

By Mr. WORKS:

Q. What repairs and improvements were necessary besides the replacement of the pipe?

A. About 400 feet of the 30-inch pipe floated down near Bonnie Brae, in the Sweetwater valley.

Mr. GIBSON: What was the diameter?

WITNESS: Thirty inches—breaking off entirely at one end and partially at the other end. This will have to be repaired, a pipe bridge or trestle constructed fifty feet in length, and the pipe sunk to its original location.

Q. Any other repairs that you think of now?

A. That, I think, covers the repairs of the pipe line. It will be necessary to cover that portion of the pipe line through the canyon, which was damaged by the flood, with concrete; also to build three or four concrete spur walls diagonally from one side of the canyon towards its center, including the pipe line, to deflect the water away from the pipe line and prevent further injury.

Q. Were any other repairs made necessary by the flood other than the replacement and repair of the pipe?

A. The canyon sides at either end of the dam were very badly eroded; also a large quantity of ledge rock and a portion of the loose material that had been placed at the toe of the dam to protect it from floods or other damage was washed away.

Q. What was necessary to be done in order to repair those damages?

A. It was necessary to construct piers underneath the pipe line, spur walls across from the base of the canyon towards the center, and to protect the dam from further injury from another flood the wasteways were enlarged in capacity, making the total some four times as great as originally designed. In order to accomplish this work without extending the wasteway into the canyon side, to the destruction of the tunnel and shaft, it was necessary to increase the height of the wasteway, and to prevent the erosion of the canyon sides by another flood the parapet was increased in height to the maximum height obtained by the last flood, and an opening being left 200 feet in width, 100 feet on either side of the center of the dam, as an emergency wasteway. Iron supports were placed throughout the length of this emergency wasteway so that flash-boards may be inserted and prevent the water when running through this emergency wasteway falling onto the gate.

house and pipe lines, and at the same time if the entire length of the emergency wasteway is required these may be removed, and still the water prevented from damaging the dam at either end of the mountain side. There has been constructed across the canyon, fifty feet below the dam, a concrete wall or dam fifteen feet in height, concentric with the dam, the intention of which is to impound water from the overflow of this emergency wasteway, forming a basin or water cushion to prevent further erosion of material at the toe of the dam. The wasteway was also increased by the utilization of a tunnel which was constructed some time ago. There were placed four blow-off pipes in this tunnel, connecting with the dam, two of those 36 inches in diameter, two of them 30 inches in diameter. In order to prevent further erosion of rock at the wasteway a concrete apron was constructed from the waste-weir a portion of the way down to the canyon.

Q. You may state whether or not these repairs that you have mentioned were necessary in order to put the system in proper condition again for furnishing water to consumers.

A. They were necessary to the maintenance and operation of the system.

Q. What was the cost of those repairs?

A. I am unable to state what the cost will be.

Q. Can you come something near the cost?

A. The estimate of cost for the work in sight from the flood—we did not strip anything or excavate anything to get at that estimate, but we took what was in sight and estimated that, I think, to be about \$20,000, conditional upon an increase as might be found necessary after we were able to ascertain the exact damage.

Q. What is your judgment now as to whether the total cost will reach or exceed that amount?

A. The total cost will exceed that amount by twenty-five or more per cent. The exact figures can be given in a few days.

Q. When did that flood occur?

A. That flood occurred January 16th, 1895.

Q. You have referred in your testimony to streets in Chula Vista. How is Chula Vista laid out?

A. The Chula Vista tract, with an area approximately 5,000 acres, was subdivided into blocks of forty acres each, and those mostly subdivided into five-acre tracts with an eighty-foot street and avenue on each side of each block. That portion of the tract west of National avenue has not been subdivided on that plan.

Q. How many different mains do you run up in Chula Vista from your main pipe line leading from the dam to National City?

A. There was originally constructed one main pipe running south on each avenue—in all, seven avenues and seven pipe lines—and running north there were five pipe lines.

Q. About how far are these pipe lines apart?

A. One quarter of a mile.

Q. Was it necessary to construct those different pipe lines in order to supply the lands in Chula Vista properly?

A. It was.

Q. You may state whether or not any of these lines or any of your pipe lines have been constructed for the purpose of reaching the lands of the company only.

A. The water is supplied from all of our pipe lines to lands of the company and lands of others.

Q. Is there any case in which you have extended the pipe line beyond the lands of other persons in order to reach lands of the company?

A. In the Chula Vista tract, on the Seventh Avenue pipe line, as heretofore described, water is being supplied to lands not owned and never owned or controlled by the company from the ends of four of these, beyond the lands owned by the company, and near the end of one of these, on Seventh street—

Q. Do you mean one of the four or one of the others?

A. One of these four on Seventh street, running westerly 1,500 feet, water is being supplied from the ends of that to land not owned by the company and never owned by the company.

Q. With reference to the other three, what distance has the line been extended beyond the lands of other owners in order to 200 supply lands of the company?

A. In one case the pipe line extends past lands now owned by others, but originally owned by the company, 700 feet. In another case the 12-inch pipe terminates opposite lands sold by the company, and in the case of Second avenue, Chula Vista, the pipe line terminates on land owned and sold by the company.

Q. The question is how far the line extends beyond property owned by other persons?

A. At the present time or originally?

Q. Well, you may say originally, and then we will take it at the present time.

A. In the case of the first avenue mentioned, or Sixth avenue, the pipe line as now in existence was constructed one-half mile 6-inch pipe. In the case of Fourth avenue it was constructed one-half mile beyond land owned by others. In the case of Second avenue it was constructed two miles past land owned by others.

Q. What is the distance these different lines extend beyond lands owned by others at the present time—at the time this suit was brought?

A. There has been no change since that. That first question answers all these.

Q. What has been the custom of the company with reference to charges for water against the land owned by the company along these different lines?

A. The annual rates, the applications for service and the applications for use have been insisted on and taken and given the same as by any other lands.

Q. And have collections been made in all cases from the land department of the company in favor of the water department 201 for lands irrigated from the system?

A. They have.

Q. Has any difference or distinction been made between lands

owned by the company and those owned by other persons in the collection of rates?

A. There has not.

Q. And in the showing of the company made of its receipts from all sources is the account credited with amounts charged up against the land department of the company the same as money collected from other owners?

A. They are.

Q. What different tracts of land besides the Chula Vista are covered by the system?

A. The system at the present time is supplying water to lands first along the reservoir site, water being taken and pumped; then to lands throughout the Sweetwater valley, a portion of those lands in quarter sections 5 and 22 being supplied by special contract known on our books as Kimball extension; lands south of Chula Vista, in Otay, and municipal supply or domestic supply for the town of Otay; north of Chula Vista in National City, and special contract with people in Horton's purchase of Ex Mission.

Q. Has the Sweetwater valley been laid off into blocks or streets?

A. Only in a very limited way, a portion of those having since been abandoned.

Q. What pipe lines do you have in the Sweetwater?

A. We have the 30-inch pipe line extending from the dam to Chula Vista, and then we have lateral pipes extending from
202 it to the lands supplied of such lengths and sizes as are necessary.

Q. Well, are all the lateral lines you put out there necessary to supply consumers of water?

A. They are.

Q. Are they all being used?

A. They are.

Q. Are they used by the company or by other consumers or both?

A. They are used by both.

Q. And in National City that section is subdivided into lots, blocks, and streets?

A. It is.

Q. And with reference to the Otay, is that subdivided in any way?

A. A portion of the town site of Otay is subdivided into lots and blocks, the water delivered to that portion of Otay being supplied through meter. The balance of the Otay tract supplied by our company has not been divided into lots and blocks. The last-named portion includes the land of J. M. Sharp supplied under special contract.

Q. For a limited time, do you mean?

A. For a limited time.

Q. Well, what pipe lines have you in the Otay?

A. We have five pipe lines that extend to the south boundary line of the ranch and which is coincident with the north boundary

line of Otay, a portion of those pipe lines extending nearly to the line, the balance of them extending to and just across the line.

Q. Do you mean that all of those five lines extend into the Otay or only to the line of the Otay?

203 A. Only to the line of the Otay.

Q. The question was what pipe lines you have in the Otay.

A. We have no pipe lines in Otay, only the terminus of one or two of them which are just across the line in Otay.

Q. What amount of land in the Otay is furnished with water from the system?

A. About 185 acres, exclusive of the very few acres of town lots being supplied through meter under special contract to people in the town site of Otay.

Q. If the company's pipe line does not extend into the Otay, how is that water supplied from the terminus of your pipe line to the land?

A. The water-takers take the water from the terminus of our pipe lines by their own lateral pipes and into their own distribution systems.

Q. Does the Otay join Chula Vista?

A. It does on the south.

Q. And these lines of pipe which you mention as running up to the north line of the Otay—are they the pipes that you have mentioned already as running through Chula Vista?

A. They are the pipes laid on the various avenues of Chula Vista running north and south.

Q. Then, if I understand you, these several pipe lines that you have mentioned in Chula Vista are intended to cover that section of country and run to the line of Chula Vista?

A. They are.

Q. To what extent has the section known as Chula Vista settled up and been improved since the construction of this system?

204 A. At the time the system was originally constructed, I am informed, there were two houses in Chula Vista and practically no development.

Q. Cannot you answer that question in a general way if you are not able to give the exact details in reference to it?

A. I will bring in the statement of the amount of improvement in Chula Vista.

Q. What is the value of lands in that section, including Chula Vista and lands outside covered by the system, without water?

A. Lands have been sold without water, expecting to get their water supply from wells and pumps in Otay, just adjoining Chula Vista, for in the vicinity of \$50 per acre.

Q. Well, in Chula Vista what are lands worth without water, suppose there was no water system there at all?

A. Due to the development and convenience of church, school, railroads, and so forth, they would be worth somewhat more.

Q. Well, how much more?

A. I think they would sell for one-half more than the other section.

Q. You think they would be worth now \$100 an acre?

A. They would not be worth anything to me.

Q. I am trying to get at their actual value, as near as you can do it.

A. I do not think they have any value without water or the possibility of water.

Q. What are the lands worth in Chula Vista with the water?

A. Lands have been selling in Chula Vista for from \$250 to \$350 per acre.

Q. Well, is that their value on the market?

205 A. That is the market — at which they have been selling during the last two or three or four years.

Mr. GIBSON: \$250 to what?

WITNESS: \$250 to \$350.

Q. What improvements in the way of furnishing water and railroad facilities has that community except the improvements made by the San Diego Land and Town Company?

A. It has practically none. The Coronado railroad runs around through the very western portion of Chula Vista, close to the bay, but not near or through the developed or settled portions of it.

Q. Were any parts of that section of the country planted to trees or cultivated in that way before this water system was put in?

A. I am informed there were two tracts.

Q. What size tracts?

A. One of them, I should say, about 12 acres, and perhaps the other one the same.

Q. Do you know to what kinds of fruits they were planted?

A. There were some citrus fruit and olives on the southernmost, and, I think, deciduous fruits largely on the other, but that matter is ancient history to me and report wholly.

Q. Do you know those tracts now?

A. I know them. One of them is owned by Mr. Griffin, J. L. Griffin, National avenue and Fifth street, and joining that Warren Kimball had olives, and the old Baird place, as it was called, located on National avenue and H street. That is all the development that I ever have been informed of there.

206 Q. It has been testified by Mr. Boal that the company has fixed a water right of \$100 per acre. I wish you would state whether, in your judgment, that is a reasonable charge for the water right for the lands, considering the advantage to the lands and the cost and expense to the company of constructing and maintaining the system and furnishing water.

A. Taken in connection with the rates asked by the company, the water-right charge of \$100 per acre is a low one, based on the cost of the system.

Q. What rate per acre has the company been charging for lands outside of National City for the annual use of the water—the rental?

A. \$3.50 per acre per annum for water for orchard purposes, based on a use of 350,000 gallons per acre per year.

Q. Is that, in your judgment, a sufficiently high charge as an

annual rate, considering the cost of the system and the expense of furnishing water to the limited amount of land that can be supplied from the system?

A. It is not.

Q. Can the company operate and maintain its system and furnish water to consumers and make a profit on the sale of water by selling the water right at \$100 per acre and furnishing the water at \$3.50, the annual rate?

A. It cannot.

Q. Has the company ever during any one year since it has been in existence, to your knowledge, made out of these rates any profit upon the water sold?

A. It has not.

207 Q. You may state whether or not during the years past, with these rates, the company has actually been losing money in furnishing and supplying water.

A. It has.

Q. Suppose the company were able to supply water and the demand were made for it for the full amount of 6,000 acres, could the company in that case operate its plant, pay its interest upon the necessary bonded indebtedness now outstanding, make good the depreciation upon the plant, and make any money, at the rates stated?

A. It could not.

Q. Would it not, as a matter of fact, Mr. Savage, constantly lose money at those rates, if it was supplying all the lands covered by the system that it can supply?

A. It would.

Q. Have you ever estimated what rate per acre would be necessary to make the company a return of any profit from its system in case all the lands were supplied?

A. I have made some computations toward that end.

Q. Well, have you sufficiently carried out those computations so you could answer upon that question now?

A. I would rather bring in the answer.

Mr. WORKS: Well, we will pass it.

Q. Going back to that part of the plant within National City, I believe I neglected to ask you what the cost of that portion of the plant was to the company.

A. Including that portion of pipe line No. 2 within the limits of National City which was estimated, the cost of the system within the city limits is \$183,753.90.

Q. What is the amount exclusive of pipe line No. 2?

208 A. \$161,666.40.

Q. How was the cost of that portion of the system arrived at?

A. It was arrived at by taking the amount of pipe in National City at its cost as purchased by this company and adding to it its proportionate cost of the laying of the pipe.

Q. Did you make those estimates yourself?

A. I assisted in making them.

Q. Assisted who?

A. I assisted Mr. Boal, the company's general manager.

Q. You may state whether, in your judgment, the amounts stated there are the correct amounts of the cost.

A. They are, to the best of my knowledge.

Mr. WORKS: You may take the witness.

Cross-examination.

By Mr. GIBSON:

Q. In estimating the proportionate cost of the pipe system within National City do you take into consideration the relative capacity of that portion of the pipe compared with the remainder of the system?

A. We estimated the exact size of the pipe lines and their exact cost.

Q. Regardless of whether they furnished water to National City or territory beyond it?

A. There was no deduction made for territory furnished beyond National City from those figures.

Q. How about the main that extends through National City and to the Ex-Mission land?

A. There was no deduction made for any use beyond the limits of National City.

209 Q. Well, isn't it a matter of fact that that line does not supply any water to National City?

A. It is a matter of fact that it supplies practically all the water to National City. The 18-inch pipe line referred to is the main supply line to the city of National City. It runs nearly the entire length of the city to within a few hundred feet of the north boundary line, where it reduces to 12 inches diameter and then runs easterly nearly one-half mile along the north boundary line of the city, and from that pipe line there are the main cross-lines that supply National City with its water. There are two other very small pipe lines which enter National City, but that is the main supply.

Q. How about the line to Vaughn's house up, the extension?

A. Vaughn's house was the point referred to where the pipe line decreases from 18 inches to 12, but on that there are a number of services that supply National City.

Q. How many?

A. There are, I estimate, eight or ten.

Q. For irrigation or domestic use?

A. For irrigation and domestic use both.

Q. And you supply about 360 acres in Ex-Mission?

A. I believe that is the number of acres.

Q. Well, about that?

A. About that number of acres.

Q. There are about 2,300 feet on that line connecting with the Ex-Mission pipe line from which no service is had in National City, on the northern boundary line of the city running east?

A. No; there is not. There are several services on that portion of it.

210 Q. How many and where?

A. There are services practically throughout the length of it, one at its extreme eastern terminus where it leaves the city, supplying water to lands now owned by Doctor Jones. There is one midway the length of it, supplying water to a dairy owned by a Swiss by the name of Forning. There are two other services supplying water to one 5-acre tract and one 2½-acre tract owned by E. Thelin. There is another service, put in within thirty days, supplying domestic water to property owned by Mr. Clark.

Q. What is the elevation of the base of the dam?

A. The elevation of the base of the dam, the lowest foundation, is about 120 feet.

Q. What is the elevation of the point of intake?

A. 145 feet.

Q. Now, can you give the different elevations from the dam down to where the pipe line enters National City?

A. Yes.

Q. You started to give that, but failed to give it.

A. Starting at the dam with an elevation of 145 feet, it descends through the length of the Sweetwater canyon 1,500 feet to an elevation in the vicinity of 100 feet, and from there it is substantially a uniform grade for nearly five miles, where it reaches an elevation of about 35 feet above sea level only, and from there it rises until it terminates at the corner of Fourth avenue and E street with an elevation of about 90 feet, as already stated.

Q. Now, from that point north into the city—north, say, to the southern boundary of the city?

A. From that point north to the southern boundary of the
211 first pipe line that enters the city from a 6 inch, reducing to 4, is on substantially a level grade 90 feet, from which point of departure from the terminus of the 30 inch main the 24-inch main has a slight fall to an elevation of about 70 feet. At the point where the 6 inch section or Highland Avenue pipe line departs or enters the city, the 18-inch main from that point to National avenue has a fall to an elevation of 45 feet at National avenue, and maintains substantially that elevation with the exception of the point where it runs down and crosses the marsh land. Some of those points are only a very few feet above sea level.

Q. What is the highest point on the 18-inch main between Fourth and E street and National City?

A. Between Fourth and E street and National City—it is at the corner, Fourth and E streets, 90 feet. From there there is no point in the 24 and 18 inch line but what is below that elevation.

Q. Well, on the south side of it or on the north side?

A. There is no point on the main pipe line that supplies National City but what is below an elevation of 90 feet after it leaves that point.

Q. Are all the elevations that you have mentioned indicated on that map?

A. Yes, sir; there are contours there that indicate those elevations, with the exception of this at the dam, which is not on there at all; neither is the lowest one given you, the last one reached by the 30-inch main, 35 feet.

Mr. GIBSON: Do you propose to introduce that map, Judge Works?

Mr. WORKS: There is no objection to the map going in.

212 Mr. GIBSON: The topographical map is the one referred to.

Mr. WORKS: It is stipulated that the map referred to by witness may be considered in evidence as Complainant's Exhibit 5.

The EXAMINER: It will be marked Special Examiner's Exhibit Complainant's No. 5.

Q. What is the elevation of pipe line No. 2, the new pipe line?

A. The elevation of pipe line No. 2, beginning just below the dam, 165 feet. It either follows or runs below a hydraulic grade line from that point to its terminus in National City, at which terminus the elevation is 145 feet.

Q. You say you tried to and did supply land at a higher elevation than your 140-foot contour would admit of, but without success?

A. Yes, sir.

Q. What was the trouble or difficulty?

A. The trouble was that the use of water on lower lands reduced the pressure in the system so that there was no water that went up to the level of these higher lands.

Q. You say that could only be obviated at considerable expense or only at an unreasonable expense. What would be necessary to overcome that?

A. It would be necessary to construct pipe lines of very much larger diameter.

Q. In place of the ones already constructed?

A. In place of the ones already constructed. For example, our 30-inch pipe line as constructed, with water at a certain elevation about 35 feet below the top of the dam, would deliver at a point in

213 Chula Vista, its termination, elevation 90 feet, in the vicinity of 1,200 inches of water as operated when taxed to its utmost, and delivering water through our system as we were last year the maximum quantity of water we could deliver through that pipe line and yet have pressure for the upper lands was a very little over 800 inches. We were delivering water at that time at elevations ranging from sea level up to the very limit that could be reached by the system.

Q. As constructed in the manner that you have stated, these other lands, had there been larger mains, could have been easily reached?

A. Yes; if the mains had been several times the size.

Q. And without inconvenience or detriment to the other lands below?

A. Yes; if the mains had been of sufficient size.

Q. Where were those lands located principally, and how much was there of them?

A. Those lands were located throughout the entire system.

Q. Well, then, that being so that under the system, as at present constructed, you found that the certain higher lands could not be supplied which were designed to be supplied and attempted to be supplied, and they could have been supplied had the mains been large enough originally, would you not call that a defect in construction?

A. As originally designed it was expected to supply certain lands with the pipe lines originally constructed. It was also the original intention of the constructing engineer, James D. Schuyler, that there should be constructed another pipe line, not on the location we have constructed, but from water to be pumped by power at the dam. Wheel pits and provision were made for that power, 214 and that was to supply the upper and higher land. The present system was not designed to supply the entire quantity of water expected to be impounded and used from the reservoir.

Q. But under whose direction was the attempt made to supply these higher lands?

A. Largely under the policy of allowing lands of others to use the water, regardless of what might be the difficulties in the future, with no thought being taken upon that by the general manager.

Q. Then an attempt was made to supply these higher lands without due calculation as to the ability of the water by gravity from the dam under the system as it then existed to reach them?

A. I do not think that that matter was considered but very little at that time.

Q. They simply went at it without proper calculation or engineering advice?

A. I do not think the matter of supplying the entire tract from that pipe line was considered, but it was expected to have a higher pipe line. I know, from personal conversation with the engineer, that that was his original design, and Col. Dickinson, the general manager at the time the majority of these high lands were furnished with water, did not consider the result of utilizing the full capacity of the short yield if he meant to supply water to low levels. At the time those lands were supplied there was very little drawn from the system, with the result that it had practically static head, the pressure being considerable at those high elevations at that point.

Q. Yes; but as the use of water increased at the lower points on the pipe line it reduced the pressure at those higher exits?

215 A. Yes, sir.

Q. Then you say that some of the lands it was found impossible to irrigate?

A. Yes, sir.

Q. About how much?

A. Well, that would be a matter of estimate.

Q. Just give it as nearly as you can. We do not care within a few acres.

A. There is no exact point to draw the line above 140 feet elevation. I presume they were attempting to supply 100 acres.

Q. What became of the pipe lines that were extended to those tracts?

A. They were not interfered with, and by the construction of this new line that land is all receiving sufficient water for its irrigation.

Q. But until the construction of the new main they were practically useless?

A. No, they were not useless, because by time division and the higher lands taking their waters somewhat nights and largely Sundays we were able to get enough water to keep most of them alive.

Q. But yet it was not to the same extent as at the lower points?

A. No; those higher lands did not get in certain seasons as much water as they would have liked to have had.

Q. And on some of them for that reason the use of water was abandoned entirely, wasn't it?

A. No; I do not think on any of them. They got what they could. Some of them hauled it with teams from where they could get it.

Q. From points below?

216 A. From points below.

Q. And they had to do that for how long a period before this new pipe line was constructed?

A. There was none hauled except in 1894, just previous to the letting of the contracts for the construction of this line, to my knowledge.

Q. What proportion of the high lands are in National City that you have referred to that it was found impracticable to serve with water?

A. Of that portion that we were attempting to serve in the vicinity of one-half.

Q. Now, you say, Mr. Savage, that the water to supply the dam, or rather the reservoir, is derived from a drainage basin?

A. Yes, sir.

Q. And that no living stream enters the reservoir site?

A. Yes, sir; not on the surface of the ground.

Q. Is it not a fact that the dam is built across the bed of the Sweetwater river?

A. It is.

Q. Is it not a fact that in the rainy season there is a living and continuous stream in the Sweetwater?

A. I do not think there is.

Q. How long have you been familiar with that region?

A. Four years last January.

Q. And the dam was completed when?

A. In 1888.

Q. Then you were not familiar with it before the dam was built and the reservoir site covered with water to a greater or less extent?

217 A. I was not.

Q. You do not know anything about the natural condition of the stream and its water supplies prior to four years ago?

A. No, sir.

Q. Are you familiar with the character of the streams in Southern California?

A. I am.

Q. Are they dried up six months or more during the year?

A. A portion of them are.

Q. And run with considerable water during the remainder of the year?

A. They do.

Q. Would you call that a stream without water?

A. No, sir; I would call it a stream with an intermittent flow.

Q. Well, supposing it should appear that the Sweetwater had such a flow, would you then say that it had no living stream entering the reservoir site?

A. Yes, sir; because it has no living stream apparent on the surface. We have a point about two miles above our dam where there seems to be a very well-defined bed rock, and up to a certain season of the year water flows over that bed rock. It reduces from flood to absolutely nothing.

Q. How long does it flow?

A. It flows, as estimated in the direct testimony, I should think, one-half the season.

Q. At about what quantity?

A. Well, in a very varying quantity, from an enormous flood to a little steam, and no uniformity of flow and no exact time for stopping or starting.

Q. Where does it have its rise, the Sweetwater river?

218 A. The Sweetwater river has its most easterly source in the Green valley directly east of the Cuyumaca mountains.

Q. What distance is that from the reservoir site, approximately?

A. About thirty-five miles.

Q. About what is the elevation of Green valley that you speak of?

A. About 5,000 feet.

Q. 5,000 feet?

A. Four or five thousand feet.

Q. Then it has its rise at that elevation and flows from the distance you state when there is water in it, acquiring acquisitions, of course, along its side at various points and at varying distances down to the reservoir site?

A. In times of flood, yes. In times of dry season it has a very much greater flood near its source than it does down below, typical of most southern California rivers.

Q. Have you ever traced that stream from the dam up to its source?

A. I have, sir.

Q. When and during what portion of the year?

A. During February of 1892.

Q. In what condition did you find it then?

A. I found it running a somewhat uniform stream the major part of its length. I do not recollect the exact quantity coming out of the reservoir at that time.

Q. But it was flowing to the reservoir?

A. I think it was at that time.

Q. What other streams enter the Sweetwater above the dam, if you know, as tributaries?

219 A. I do not recall the names of the streams entering the Sweetwater. There are numerous valleys with streams of more or less importance, but they are simply secondary affluents; they are not main streams at all.

Q. Are any of them living streams that you know of?

A. I think the principal one is the one at Lawson valley, which enters the Sweetwater.

Q. About how many miles above the reservoir is that?

A. It is about fifteen. I was told by an old resident about sixty days ago that it was a living stream.

Q. Are there any others below that?

A. I do not think there are any.

Q. How many above, according to the best of your recollection, from the examination you made of the territory?

A. There is a stream comes out of the Viejas valley that has been running every time I have been up there; some two or three times, I think, I have had occasion to cross it.

Q. That enters the Sweetwater on the north side?

A. Yes, sir.

Q. And how far above Lawson valley—the stream that enters in Lawson valley?

A. Perhaps about five miles.

Q. Now, the next stream.

A. There is a small one from the south that I do not think would be a living stream. There is one from the east—the Guatay—that joins the Sweetwater near Descanso.

Q. What distance above the last one mentioned—the last living stream?

A. In the vicinity of nine or ten miles.

220 Q. Any others above that?

A. That is up so near the head that there are none others of any special distinction. I am not positive as to the characteristics of those affluents up there, as I have only seen them at uncertain intervals. I am of the opinion, however, that those mentioned are living streams.

Q. Well, is it not a fact that considerable snow falls near the head-waters of the Sweetwater and remains until late in the season?

A. There is very little snow falls and remains. The majority of it is evaporated very rapidly.

Q. Doesn't considerable of it melt and go into the soil and help feed the stream?

A. Very little; the majority of the snow falling in arid regions is evaporated and goes up instead of down. In going over the arid country after a heavy snowfall, back where the evaporation is great, the ground is not only free from snow, but it is practically dry. There is on the top of the Cuyamaca mountains some snow.

Q. Sir?

A. There is on the top of the Cuyamaca mountains and in the vicinity of Julian and Banner quite a snowfall, but to the best of my opinion it does not last but a very short time. It is not a region of long-drawn-out melting snow.

Q. Well, that depends somewhat on the elevation and the exposure. Of course, if it is exposed to the desert winds, it is apt to disappear; but on the north side of the hills and where it is protected it remains longer, does it not, and melts instead of evaporating?

221 A. It would, but our proportion of the mountain country is largely from the east side, the north side going toward the Cuyamaca.

The further hearing in this cause is continued until 9.30 o'clock tomorrow morning, Thursday, October 3rd, 1895.

222

THURSDAY, October 3, 1895—9.30 a. m.

H. N. SAVAGE recalled.

By Mr. GIBSON:

Q. You say that the capacity of the reservoir is 1,200 inches constant flow?

A. Yes, sir.

Q. That is predicated on an irrigation season of 200 days?

A. No, sir; that is on a constant flow.

Q. For three hundred and sixty-five days?

A. For three hundred and sixty-five days.

Q. Then that is the actual capacity of the reservoir?

A. Yes, sir.

Q. Regardless of the amount of land that it will supply?

A. Yes, sir.

Q. Then, by your system of carrying over a certain percentage from year to year—forty per cent. to fifty per cent., I believe you said—

A. Yes, sir.

Q. —it reduced the duty of the quantity of water stored by the reservoir that much?

A. It does.

Q. Now, do you remember when the tunnel was made, the one you testified about yesterday, that is used as a wasteway or has been used as such?

A. I was not with the company at the time that tunnel was constructed.

Q. You know of such a tunnel?

A. I do, sir.

Q. At what contour height was that constructed?

223 A. That tunnel left the reservoir 170 feet above sea level.

Q. How high above the bottom of the reservoir?

A. It is 25 feet above the lowest outlet.

Q. Then the capacity of the reservoir was only the difference between—say within that 25 feet?

A. The water at the time I came here was being held at an elevation somewhat above that by reason of the existence of a cofferdam, of a temporary dam and weir combined, that was built in the tunnel.

Q. Do you know what that tunnel was constructed for originally?

A. I understand it was constructed to prevent the reservoir impounding water and flooding lands owned by George Neale and others.

Q. At the upper end of the reservoir?

A. Yes, sir.

Q. Do you know when this temporary dam across the mouth of the tunnel, which we will call the Neale tunnel, to distinguish it from the other wasteway since constructed, was erected?

A. No; I do not.

Q. It was there when you took charge of the work?

A. It was.

Q. You don't know how long before?

A. I do not.

Q. Until that temporary cofferdam was so constructed the capacity of the reservoir was materially diminished, was it not?

A. It was.

Q. In other words, it could not be used to its maximum duty?

A. It could not.

Q. What was the duty of the water so stored within the 25 feet—that is to say, from the top of the lowest outlet up to the
224 mouth of the Neale tunnel? Give first the actual amount of storage, and then we can tell from the proportions you have to carry over what its practical duty was.

A. There was irrigated and under irrigation March 10th, 1891, approximately 1,310 acres of land which had been irrigated with the water that could be stored below that elevation.

MR. WORKS: You mean the elevation of the tunnel?

WITNESS: The elevation of the Neale tunnel.

Q. Now, you have not given the capacity of the reservoir in inches at that contour—the Neale Tunnel contour.

A. About 70 inches.

Q. That is the actual capacity below the mouth of the Neale tunnel, is it?

A. Yes, sir.

Q. Then the actual capacity of the reservoir given at 1,200 inches is the difference between the capacity at that contour and the highest contour of the reservoir?

A. The difference between 70 inches and 1,200 inches is approximately the difference between that contour and the top of the dam.

Q. What is the highest contour of your reservoir?

A. It is 215 feet elevation above sea level or 70 feet above the lowest outlet, the mouth of the Neale tunnel being 25 feet above the lowest outlet.

Q. Then all these calculations as to capacity are based on the

cubical contents, you say, of the reservoir above the lowest outlet—25 feet above the bottom—and the last contour that you have mentioned, being the highest contour of the reservoir, 70 feet above the lowest outlet?

A. Yes, sir.

225 Q. Now, in getting at the practical duty of the quantity of water stored, as you have stated, between those two contours for 200 days, which is called the irrigating season, explain how you arrive at that.

A. The actual duty of water is not defined by reason of different crops requiring a different quantity of water. The number of inches flow for 200 days would be increased over that number of inches flow for 365 days as 1,200 inches is to—I can calculate that for you.

Q. I wish you would. You may also explain the difference between the acre foot and the miners' inch furnished to irrigate the ground on the basis of 350,000 gallons per annum per acre or one inch to seven acres. What I want, in other words, is the system upon which you distribute this water and the quantity allowed for the purposes of irrigation per acre per annum on either of those bases.

A. (After making calculation.) 1,200 inches constant flow per annum would be between 2,100 and 2,200 inches flow for 200 days. The acre foot is substantially 326,000 gallons or sufficient water to cover one acre, which has an area of 43,560 square feet, one foot in depth.

Q. Per annum?

A. One foot in depth per annum. This acre foot, or 326,000 gallons, is substantially $\frac{1}{8}$ of a miners' inch according to the southern California standard. Flowing through the irrigation season of 200 days, 350,000 gallons per acre per annum would be approximately $\frac{1}{4}$ of a miners' inch flowing as above for 200 days.

Q. Then there is a difference between the one-acre foot and 226 the 350,000-gallon basis of measurement?

A. There is.

Q. To the extent that you have stated?

A. Yes, sir.

Q. Now, you referred to the miner's inch in southern California. What is generally understood as a miner's inch in southern California? Just define it as nearly as you can.

A. It is taken as being the equivalent to a flow of $\frac{2}{10}$ ths of a cubic foot per second.

Q. $\frac{2}{10}$ ths of a foot—that is, the equivalent of $\frac{1}{5}$ th of a foot?

A. Yes, sir.

Q. Just another way of stating it?

A. Yes, sir; it is also approximately nine gallons per minute, 13,000 gallons per day of twenty-four hours.

Q. That is, in round numbers it is 13,000 gallons?

A. Yes, sir; very close to that.

Q. It is calculated as 12,960?

A. Yes, sir.

Q. Twenty-four hours? Now, when a miner's inch of water is spoken of, it usually means the quantity of water that will flow on that basis of $\frac{1}{50}$ th of a cubic foot per second for 24 hours in a day for the 365 days in the year?

A. It does.

Q. Well, then, when you take and limit the time from 365 days to 200 days does it not increase the quantity that you designate as a miner's inch or one acre foot proportionately?

A. It does not.

Q. For instance, if you say that the reservoir has a capacity of 1,200 inches for 365 days' constant flow, that is its actual
227 capacity, and then you limit that flow to 200 days, thereby increasing it from 2,100 to 2,200 inches for 200 days, don't you increase thereby the duty of the water—I mean its practical duty?

A. No; you do not increase the duty of the water, you simply increase the rate of delivery of that water.

Q. You can distribute it over a larger area?

A. You can irrigate a proportionate increase in the number of acres by reason of delivering it more rapidly throughout the irrigation season of 200 days.

Q. If the irrigation season extended over the 365 days, and the irrigators called for water during that entire period, then the capacity of the reservoir would not be as great practically as it is on the basis of the irrigating season being only 200 days?

A. It would not if they required the same rate of flow throughout the 365 days.

Q. I am assuming they would. Then from the fact that the irrigating season is only $\frac{300}{365}$ ths of a year enables you to just increase the practical duty of the water to that extent?

A. It does.

Q. Then if a miner's inch of water is agreed to be furnished to a consumer for irrigation, and he pays for a miner's inch of water, does he not pay for it on the basis of having it run for 365 days, if he requires it, instead of only 200 days that he may need it?

A. He does, unless there is some specific contract as to what his special miner's inch shall consist of. The miner's inch definition for a quantity of water is an unfortunate and remarkable ambiguous one and never should have been used.

Q. No; but still, if we discard altogether the old idea of
228 measuring it through a one-inch aperture under a four-inch constant pressure above or from the hydraulic center of the aperture, and take it on the basis of a $\frac{1}{50}$ th part of a cubic foot per second, that makes it certain?

A. That certainly does.

Q. We are dealing with it on that basis, the equivalent of a $\frac{1}{50}$ th part of a cubic foot per second?

A. Yes, sir.

Q. Now, then, if the company sells, say, 600 inches of water, or, rather, receives compensation from its consumers for 600 inches of water, on the basis of $\frac{1}{50}$ th of a cubic foot per second for 365 days,

and they only use it for irrigating purposes for $\frac{300}{365}$ ths of a year, are they not paying for the difference between the $\frac{200}{365}$ ths and $\frac{100}{365}$ ths for which they do not have any benefit from the water?

A. If consumers were to buy their water of companies who could only furnish it under those conditions of limited and constant flow, that would be the result.

Q. Is it not a fact, Mr. Savage, that that is the basis upon which water is sold there by your company over the lands which it supplies water for irrigation purposes, and is it not also the further fact, according to your testimony and that of the general manager, Mr. Boal, that it is only used practically about 200 days in the year, when the basis of charge is for 365 days in the year?

A. It is not a fact that the company charges or receives any pay for any water which it does not deliver.

Q. Well, then, are we to understand that if a consumer is entitled to receive ten inches of water, and, as a matter of fact, he only uses five inches of water, that he is charged only for the five
229 inches?

A. It is a matter of fact and practice that he receives the full quantity of water which he applies for during the irrigation season of 200 days, or during a very much less time, if he asks for it.

Q. Well, then, we will take this instance and see whether it is so or not: Supposing a consumer applies for ten inches of water, and the practice of the company is to charge in advance for that water, is it not a fact that he is charged up with it when he applies for it—

Mr. WORKS: Complainants object to the question on the ground that it is immaterial, irrelevant, and incompetent; on the further ground that the complainant does not sell water by the inch, and applications are not made in that way.

Mr. GIBSON: I have not finished the question, but let the objection apply to all of it when it is finished.

Q. —according to the rules of the company, assuming, of course, in the first instance that he is a consumer and entitled to receive the water?

A. It is.

Q. Then for the amount of water which he receives he is charged on one of the two bases adopted by the company—of so much per acre foot or so much per inch?

A. So much per acre foot or so much per thousand gallons.

Q. The thousand gallons, however, are on the basis of the miner's inch, are they not?

A. They are not.

Q. But all bases of charges, however, are on the quantity that is used per annum?

230 A. It is, with a proposed minimum charge.

Q. What do you mean by a proposed minimum charge?

A. The company desire, in justice to all water-takers, that consumers who have acquired the right to use water, having distribu-

tion systems and having used the water, shall pay a certain minimum charge.

Q. That is, whether they use the water or not?

A. Whether they use it or not, having once acquired the right to use it.

Q. That is for the purpose of what?

A. That is for the purpose of giving the company a just return for the maintenance of a system which must be held in constant readiness to supply that water to that consumer on demand at any time, and cannot dispose of it to any other party.

Q. Now, when water is furnished for domestic purposes, that is on the basis of furnishing it for the entire year?

A. Yes, sir.

Q. I suppose it is the understanding and the fact out there that water is used the entire year for domestic purposes?

A. And irrigation purposes frequently also.

Q. Is it not a fact also that a number of those in the agricultural sections of the territory that you supply receive water for irrigation and use some of it for domestic purposes? In other words, are they not dependant upon their irrigation supply for their domestic use on the land that they live upon?

A. No, sir; they purchase an additional quantity for their domestic use.

Q. Is that so in every case?

A. So far as I know it is, and I am supposed to know that it is so.

231 Q. It is the general practice of the company to charge separately in all cases for water for domestic purposes and for water for irrigating purposes, is it?

A. It is; and in explanation of an answer just given, the domestic rates are not necessarily annual.

Q. I was going to ask what was the difference of the mode of charging between domestic and irrigating rates?

A. Water is furnished for domestic purposes on demand, and also turned off on request of the consumer, payment being made and received only for that portion of the time during which the water is supplied.

Q. But in cases where it is furnished for irrigation the other rule obtains; they charge for what they apply for?

A. They are charged for what they apply for per annum, unless their use begins during the irrigation season, then in the case of water rights sold the charge is proportionally for the number of days remaining in the year.

Q. That is, for the fractional part of the year?

A. Yes, sir.

Q. Now, you say something about special contracts with consumers of water for irrigation. What do they consist of generally? I mean what are the terms or the advantages that the consumer obtains?

A. The terms are that in consideration of paying a certain amount of the total cost of the distribution system pipes have been laid and

mains extended into sections of the country where the company would not have felt justified in constructing pipe lines from the annual rates likely to be returned, and also in the special contract referred to in E-hibir No. 4, J. M. Sharp, 15 acres. This water was supplied to a tract of land owned by an outsider, the company never having had any interest in the same under a limited contract to be terminated at the end of five years.

Q. Is there no provision in that contract whereby it may be renewed?

A. There may be such a provision, but, if so, it is dependent upon the mutual desires of both parties.

Q. What does he use that water for?

A. Irrigation.

Q. For the growth of trees?

A. For the growth of deciduous trees, citrus fruit trees, nursery stock, vegetables, and so forth.

Q. It has been land upon which trees cannot be grown without irrigation?

A. Yes, sir.

Q. Then if the water were cut off he would have no means of obtaining an irrigation supply, would he, unless he should sink wells and pump water?

A. Unless he should sink wells and pump water, as has been and is being done by his immediate neighbors.

Q. Where is that land situated?

A. That land is situated in Otay, about half a mile south of the south boundary line of the National ranch.

Q. At the section known as Chula Vista?

A. Yes, sir.

Q. Is not the general form of the country down to that section—I mean is not the general inclination of the country towards the

233 Otay section from where the pipe line branches, one part going north to supply National City and the other part going south to supply Chula Vista and Otay?

A. No, sir; it is the reverse.

Q. Is it not a fact that National City is generally higher in elevation than Chula Vista?

A. The elevations are substantially similar at equal distances from the coast, with the exception of a higher general elevation at the south boundary line of the Chula Vista section.

Q. Is it not a fact that the pipe line running north from E street and National avenue into National City ascends an elevation, while a similar connection with the main pipe line running south to supply Chula Vista extends down on a lower elevation?

A. The elevation of the pipe line on National avenue from E street north into National City is somewhat lower at the north end of National City than in Chula Vista, while the pipe line running south on National avenue, Chula Vista, in a direct opposite line from the National City main has a very uniform grade.

Q. That is to say, the pipe line running south in Chula Vista is

nearer a theoretical grade line than that running north into National City?

A. It is nearer a level grade.

Q. And what is the difference between the two greatest depressions on the respective grade lines of those two pipes?

A. The pipe line running into National City has three general depressions, going down from an elevation of about 50 feet on National avenue, its highest point after it leaves E street, Chula Vista, to an elevation of approximately sea level, in three different places at intervals of about one-half a mile each throughout its
234 length in National City, while the pipe line running south on National avenue, Chula Vista, does not vary to exceed five feet in elevation throughout its length, or, at, most, eight feet.

Q. Does that not, then, affect the pressure and supply in the National City territory, when water is being used within that territory and Chula Vista at the same time, and Otay, immediately south of and adjoining Chula Vista?

A. The use of water in Chula Vista takes a certain quantity from the main line and does decrease the quantity of water that would go to National City, provided there was no use throughout Chula Vista.

Q. Perhaps I don't understand that last qualification, "provided there was no use"——

WITNESS: In Chula Vista.

Mr. WORKS: You mean there would be less when there is water used in Chula Vista than there would be if there was none used?

WITNESS (continues his former answer): And also, of course, decreases the pressure that would be in National City, provided there was no use in Chula Vista.

Q. When water is being used in Chula Vista and the adjoining southern territory and in National City at the same time does it not materially decrease the supply in National City by reason of the fact that water is being used in the Chula Vista territory and the southern territory adjoining?

A. It does, and to so great an extent that we have been compelled to construct this new pipe line to insure National City's required high pressure for fire service and other purposes.

Q. Is it not the intention of the company to substitute this new pipe line, which has been designated heretofore as pipe line
235 No. 2, in place of and instead of pipe line No. 1 in National City?

A. It is not.

Q. Not to any extent?

A. It is the intention of the company to have at all times two main supply pipes from its reservoir to its general distribution system, either one of which may be used to supply the major portion of the water required throughout the lower elevations, and in case of necessity the domestic supply throughout the entire distribution system in case of any accident to either of the lines, and in case of high and increasing irrigation use it may be necessary to temporarily at times disconnect the distribution systems of different

portions of the distribution system supplying the higher lands from one main and the lower lands from another, as we have been frequently compelled to make time divisions of certain pipe lines, usually week intervals, designated as high weeks and low weeks, the lower lands taking its supply one week and discontinuing their irrigation use, giving to the higher lands the total pressure and quantity of water the succeeding week.

Q. Then whenever the water falls below the outlet of the new pipe system it would be necessary, so far as Chula Vista is concerned, to rely upon pipe line No. 1?

A. It will not, sir, because in designing the new pipe system, pipe line No. 2, and in locating it the hydraulic grade line has been so taken that a connection may be made from this same new pipe line to two outlet pipes, one 14 and the other 18 inches in diameter at the base of the dam, which take their water from the same point and elevation that the 36-inch or pipe line No. 1 takes its supply.

236 Q. Well, then, pipe line No. 2 is chiefly valuable to enable the company to supply higher lands than that already supplied by pipe-line system No. 1?

A. No, sir; it will supply lands both low and high, but it has been designed so that we may have the water up at the maximum elevations that we can supply throughout the length of this pipe line No. 2 rather than having the pipe line located through the valley on constant low land and then forcing the water to higher elevations.

Q. Does that not agree with what I have said, that it is valuable—it may not be chiefly so, but is it not valuable in order to reach the higher lands?

A. It is valuable.

Q. And you say by these extra connections at lower points on the reservoir it may be utilized to reach the same territory supplied by pipe line No. 1?

A. It reaches the same territory supplied by pipe line No. 1 at any time, but in case of emergency, where the water is all used from the reservoir, substantially another connection may be made from the present intake of pipe line No. 2, so that it may take its supply at the lower elevations.

Q. I understand that the water taken in the higher pipe line will reach the lowest territory, but I mean you have several connections with that new pipe line, have you not, so that you may take the water at the contour that the main portion of it connects with the dam or its main intake, so to speak?

A. Yes, sir; there are service connections at intervals on the new pipe line.

Q. Then when the water goes below that contour you may
237 yet utilize it by these lower connections?

A. We may admit water into the pipe line that is in the reservoir below where the pipe line No. 2 now takes its supply.

Q. That you would call the main intake?

A. Yes, sir; at the present connection.

Q. When it falls below that you can still utilize that pipe line by taking it at these lower intakes?

A. Yes, sir.

Q. So that all the water may be taken below that main intake through these lower intakes?

A. The major portion of it.

Q. And then when the water is taken into these lower intakes and the hydraulic grade of the pipe line—that is, the theoretical grade would not thereby be any greater practically than pipe line No. 1? It would not supply any higher territory any more effectively than No. 1, would it?

A. It would supply higher territory than No. 1 because of our ability to disconnect the distribution system, so as to supply the major portion of the higher lands from one pipe line and the major portion of the lower lands from the other pipe line at the same time.

Q. That is to say, you would divide it into two sections?

A. We would; yes, sir.

Q. Supply the high lands at one time and then cut them off and supply the low lands?

A. Not with these two systems, because we could divide them. The major portion of the high lands will be supplied in emergencies from pipe line No. 2.

Q. Was not the main reason for constructing that pipe line
238 to supply the demand created by use in Chula Vista?

A. It was not, sir.

A. And not in National City?

A. The main reason was to prevent damage suits that were threatened for water supply in National City, and that reason was used by the company's engineer in his efforts to convince the directors of the necessity of that pipe line.

Q. Where has the increase been greater—in National City or in the outside and other territory supplied by the company?

A. The increase in use has been greater in Chula Vista for some time.

Q. What were those damage suits threatened for?

A. For lack of water supply. Throughout the last two irrigation seasons previous to this one the supply of water for the higher lands of Chula Vista and National City, the lands lying directly east of National City, in Paradise valley, and also high lands throughout the system, was insufficient. The company owning the major portion of the high lands being irrigated in Chula Vista were able to control that irrigation in numerous cases. At the witness's request and direction irrigation was discontinued wholly on the company's lands in Chula Vista at high elevation to supply water to other lands. The impossibility of supplying these high lands with their full quantity and at the exact times the irrigator thought necessary, while low lands in both National City and Chula Vista were getting their full complement, created a great deal of hard feeling, which resulted in very unpleasant controversies between the engineer and the water-takers.

Q. Then by cutting off the supply in Chula Vista on the company's lands the supply on the high lands in National City
239 was increased, was it?

A. It was, and it would have been if we had cut off the supply anywhere in Chula Vista or National City; but the difficulty in getting the water on the high lands was such that we thought it better to sacrifice some of those than the lower lands.

Q. Then these controversies that you refer to were threats made against the company to sue for damages on account of the company's failure or inability to furnish water to consumers; is that it?

A. They were; yes, sir. The principal threat, perhaps, came from one of the water-takers directly out of National City, who was supplied by a pipe line which was delivering the major portion of the water, and in Eighth street, National City, or Paradise valley, although threats were very frequent from the water-takers in high lands, who claimed damages.

Q. Then, as a matter of fact, if I understand you, the increase of service on high lands in Chula Vista decreased the company's ability to serve high lands in National City theretofore served?

A. The lands in Chula Vista, some of them, received their water supply long before some of the lands in National City that were given water at the expense of some of the Chula Vista lands. It was simply the fact that not taking water from one portion of the system increased the supply and pressure at other portions. The use might have been stopped at any point, as it frequently was, to divide times.

Q. But still increasing the cultivation of the company's lands in Chula Vista at the higher elevations decreased the company's ability to supply water to the high lands in National City?

A. The company did not plant any high lands in Chula
240 Vista that decreased the pressure of water in National City, although the company did plant some lands in Chula Vista that used water, and the use of that water reduced the quantity of water that could be delivered and the pressure of that water in other parts of the system.

Q. Including National City?

A. Including National City; yes, sir.

Q. How does that land lie known as the Ex-Mission tract, immediately north of and adjoining National City, with regard to its elevation?

A. The elevation of the Ex-Mission tract in general is higher than National City in general. The extreme ends of the Ex-Mission tract are particularly high.

Q. Well, how about the irrigated portions?

A. The irrigated portions in general are high.

Q. Higher than National City?

A. The average elevation of the irrigated portions of the Ex-Mission tract are higher than the average elevation of the irrigated portions of National City and Chula Vista both.

Q. How does it compare with the high portions of both National

City and Chula Vista as to lands that are under the system and may be irrigated with a proper supply?

A. The elevation of lands in the Ex-Mission is very high. We have had great trouble in getting water up to the desired elevation ; so much so that there is indicated on that map in red figure circle, enclosed—

Q. You refer to the topographical map already in evidence?

A. Yes, sir ; the exact elevations at which water is being delivered, 155 feet, and 163 feet in one case.

241 Q. Do you know how long the company has been serving the Ex-Mission lands?

A. The company had been serving the Ex-Mission lands some time when I entered the company's employ in January, 1891.

Q. Had been some time previously ; you don't know how long?

A. I don't know how long ; you can easily ascertain.

Q. Can you give us the quantity of water that was necessary to supply the inhabitants of the territory served with domestic water—that is, for domestic use?

A. We have no means of determining the quantity of water being taken for domestic purposes from our system.

Q. Do you not use the meter system?

A. We do.

Q. For the purpose of measuring water outside of National City?

A. We do.

Q. Does the same meter measure the water used for both domestic purposes and for irrigation?

A. In some cases ; yes, sir.

Q. Are the rates of charges different in those cases for domestic use and for irrigation use?

A. The meters have been put on for the combined use, all of them, substantially all of them, within the last nine months.

Q. How is it with regard to meters in National City?

A. The meters in National City have been used constantly since I have been with the company, but the quantity of water taken by a consumer through a meter is absolutely no criterion of the quantity of water that would have been used by that same consumer without the meter, as evidenced by the death of lawns and flowers, and so forth, immediately after the meters are placed there.

242 Q. Yes ; but where the same meter measures the water delivered for both irrigation and domestic uses I can readily see that the company would be unable to segregate the quantity used for either or both from each other ; but are there no instances where the mode of using the domestic supply, the mode of measurement of the water used for the domestic supply, is different from that used to measure the water supply for irrigation uses?

A. There are ; but usually there is also some claimed stock use through the meter.

Q. Is that for watering stock?

A. For watering stock ; yes, sir ; and the stock are frequently taken to convenient watering troughs for their supplies. I can bring you, if you would like the exact statements of the meters, and

describe the exact conditions under which the supply has been taken, but this meter information would be absolutely worthless as data to arrive at the quantity of water used for domestic purposes.

Q. Then it will not be necessary to go into that, but what we would like to know is this: how much or what proportion of the water you store in your reservoir is used for irrigating purposes and how much for domestic purposes, if it can be segregated anywhere near to the approximate quantity.

A. The actual quantity of water consumed for domestic purposes that is not also used in connection with irrigation is so small that we never take it into account in our estimate of the quantity of water or the number of acres that we can supply from the Sweet-water reservoir.

Q. You say that the capacity of the reservoir is about 6,000 acres for irrigation use?

243 A. Yes, sir.

Q. Can you give us any idea of the population that the reservoir will serve domestically in addition to the irrigation duty?

A. At the present time we are supplying water for domestic purposes to a population of, I estimate, about 2,000 people.

Q. In all the territory?

A. In all the territory—possibly 2,500; but the number of acres already supplied with the comparative population as it is has not led us to expect a very much greater population before the entire 6,000 acres or capacity for irrigation of the system is required; consequently we never have figured on supplying water for domestic purposes to a population that we do not expect.

Q. Does your domestic supply, as you understand it, include the supply of water for all useful purposes excepting irrigation and mechanical uses?

A. It is used for all purposes, including irrigation and mechanical purposes.

Q. But what I want to arrive at is this: For instance, you make a charge for irrigation on the basis of so many acres?

A. Yes, sir.

Q. Then you make a charge for domestic use to the same consumer?

A. We do.

Q. Now, in that domestic use may he use that water for all purposes other than irrigation?

A. Just such purposes as he states in his application.

Q. What are they? Just enumerate them, please, generally. Does it include watering stock?

244 A. He applies for water to use at his house and separately for his bath, water-closet, stock, sewing-machine motor, or whatever separate uses he may have.

Q. That all comes under the head of domestic supply, does it?

A. Yes, sir; we treat it so.

Q. That is what I wanted to get at. Do you supply water to any

great extent in any portion of the territory covered by your system or any portion of it for mechanical uses?

A. Very little, indeed.

Q. About what quantity in the aggregate?

A. We are supplying water for mechanical purposes at the present time to one crushing mill and one stamp mill, which has not been in operation but a few months of the several years, and a few sewing-machine motors, a very immaterial quantity, only a few hundred thousand gallons per year.

Q. Or to manufactories, including railroads?

A. The railroads have their supply. The rates for railroads are based on meter rates, the quantity taken, so many engine tanks full per day.

Q. What do they require in the aggregate?

A. I am unable to give that without going over the books.

Q. You can prepare an estimate, can you?

A. I can and will.

Mr. Gibson: Including that supply for all mechanical and manufacturing purposes.

Q. I would like to go back to the measurement of water and ask you how many acre feet there are in 1,200 inches.

A. In round numbers, 18,000.

Q. 18,000 acre feet?

A. Yes, sir.

245 Q. What is the equivalent of an acre foot in miners' inches?

A. It is substantially one-eighth of a miners' inch, 200 days' flow.

Q. Can you give us the amount of pipe taken up in National City for which the company had no use, kalamined pipe?

A. Approximately, 1,000 feet each of 4 inch and 6 inch diameters; also there was taken up about 600 feet of 4-inch kalamined that was giving so much trouble from leaks, due to its destroyed condition, that we replaced it with a 2-inch pipe to serve a consumer at the end.

Q. A 2-inch pipe of what material?

A. Black wrought-iron pipe or, possibly, galvanized pipe. I don't recollect just which. The pipe taken up was located on Fifth avenue, National City, between Eighth street and Twelfth street, and the 4-inch pipe taken up was located on Seventh avenue between Ninth street and Twelfth street, and the defective pipe was taken up on Sixth avenue between 13th and 15th.

Q. How much in Chula Vista and of what kinds?

A. In Chula Vista—

Q. The question is as to the amount that had been taken up.

A. I have made a little list of that pipe from our maps yesterday morning, and I can probably give you most of it quite accurately, although it was laid and taken up before I came here; but I know from general experience something about it.

Q. Some of it has been replaced under your supervision?

A. Yes, sir; I have replaced a portion of it.

Q. Give first, before I forget it, please, the character of the spiral pipe, that has been designated here as spiral pipe. Describe how it was made and the gauge of the thickness.

246 A. I don't recollect the gauge. It was considerably thinner than wrought-iron pipe usually used in this section. It consisted of long narrow strips of sheet iron which were spirally wound round a mandril or other machine and riveted, the end connections being made by means of rings, gaskets, and so forth, pulled together and held in place by bolts.

Q. How nearly can you approximate the gauge of the pipe?

A. The spiral pipe, most of it, No. 16, B. E. G.; the 24-inch pipe was No. 14, B. W. G. You want this in miles, do you, giving the size of the pipe of that portion of it taken up?

Q. Yes.

A. On Sixth avenue, Chula Vista, 2 miles of 6-inch spiral pipe; on Fourth avenue, Chula Vista, one mile of 24-inch spiral pipe, between E street and First street; on Fourth avenue, between Eighth street and south to the Otay line, about $1\frac{1}{2}$ miles of 8-inch spiral pipe; on Fourth avenue, 1 mile of 12-inch spiral, between First street and Fifth street; also $\frac{1}{4}$ mile of 12-inch spiral. That is substantially the quantities.

At the request of the defendants' attorneys, to be used as evidence, I have obtained substantially the total cost of that spiral pipe and the cost of laying the same as near as it can be had.

Q. Can you give, in addition to that, the cost of replacing it?

A. A portion of it has never been replaced.

Q. Give the cost of keeping it in repair until the portion that has been replaced was replaced.

A. There was very little repairing done on the portion of it that was taken out that has been replaced, substantially none, because it was all taken out, and what repairing was done on the portion replaced was done before I came to the company.

247 There is some of it in National City, about $\frac{3}{4}$ of a mile, that was taken up and, I am informed, repaired and relaid, but it was not taken up in National City, it was taken up outside, and there was also a portion of that taken up that was laid in Ex-Mission, after having been repaired, but the portion of it taken up as given you in the first list, about five miles, I do not think there was any material expense laid out on repairing that pipe.

Q. But all this pipe was under ground, was it not?

A. The five miles, I am informed, was laid and supposed to be in condition for service.

Q. To replace it, it is necessary to reopen the trenches, remove the pipe, place new pipe therein, and cover the trenches again?

A. Yes, sir.

Q. How much kalamined pipe was taken up or other pipe, for any reason, including lack of use for it and because it was not suitable for the service for which it was laid?

A. There was, as I understand, about one-half mile of 12-inch-diameter kalamined pipe taken up in Chula Vista to replace a por-

tion of the 24-inch spiral pipe that was taken up, the 12-inch kalamined being laid in the same place occupied by the 24-inch spiral. We have had occasion to put in a large number of short sections of 6 and 12 inch kalamined pipe that had been destroyed by the action of the soil, we believe. These sections would vary in length from two or three feet to fifteen or twenty feet.

Q. What would it amount to in the aggregate?

A. It would be only a guess and I will say less than 250 feet.

Q. The half-mile 12-inch kalamined that was taken up in Chula Vista to replace the 24-inch spiral, then you had no use for that?

248 A. That was used and has been in use since. A temporary six-inch pipe was laid by me connecting the north end of that 12-inch kalamined pipe with the terminus of the 30-inch main at the corner of Fourth avenue and E streets.

Q. And that last pipe was substituted for the kalamined pipe, was it?

A. No; that last 6-inch was added to the kalamined pipe to make the mile.

Q. Where it was laid in place of the 24-inch?

A. Yes, sir.

Q. Then what did you put down in the place from which you removed the 12-inch kalamined pipe?

A. Nothing.

Q. Then that one-half mile you had no use for if you removed it?

A. There had been no land sales and no development out in that section of Fourth avenue, Chula Vista. There has since been laid and will be laid in the next thirty days a 12-inch pipe, occupying the position formerly occupied by this 12-inch kalamined pipe that was taken up. In fact, this same 12-inch kalamined is being again relaid in the same trench, which is on Fourth avenue, Chula Vista, between Third and Fifth street.

Q. Isn't that rather an expensive mode of changing and supplementing the system?

A. It is an expensive mode.

Q. What part or parts of the system, and how much of it, was extended to lands that were not sold and existed in that condition in February last, both inside and outside of National City?

A. There were practically no pipe lines of the company but which had services from very near their termini that were supplying water to lands being irrigated, for which the water system was receiving credit.

249 Q. You say practically. What do you mean by practically?

A. I mean that there are individual cases where the pipe lines are running a few feet only.

Q. Beyond the point of service?

A. Beyond points of service. That is particularly true in National City, as can be seen by reference to the map which shows the exact location of services.

Q. Well, that was not true when the system was originally constructed and completed, not including pipe line No. 2?

A. No; when the system was originally constructed there was, of course, only a portion of the services called for the first year, with an increasing amount since.

Q. Well, that was a very small proportion, wasn't it, the first year?

A. Yes; a very small portion, but I will give that exact number by years, if you desire, that the services have been put on.

Q. You might give it in acreage or whatever way you have of arriving at it.

A. I will bring over the information tomorrow morning.

Mr. GIBSON: That is, on our next examination; we are going to adjourn over. On the day that we adjourn to, say?

WITNESS: Yes, sir.

Q. The system, then, was originally designed to supply a large body of unoccupied land largely owned and controlled by the company, was it not?

A. The system was designed to supply the land which have since required water, the ownership being as shown in Exhibit No. 4. It has also been necessary since the original design and construction of the system to make numerous extensions to supply lands
250 demanding and requiring water.

Q. To what account were those extensions charged—construction or maintenance—if you know?

A. I do not know.

Q. Can you give us the cost of repairs of the spiral and other pipe that had to be taken up and replaced and fortified on account of defect in the pipe or defective laying?

A. I can ascertain from our books, and in fact am already collecting that information, as before stated, in response to a question from the complainant's attorney in the direct examination.

Q. Could you give us any idea of the relative difference in the cost of material and labor required in the construction of the dam and pipe line No. 1 at the time they were constructed and what they would have cost in February last?

Mr. WORKS: Complainant objects to the question as immaterial, irrelevant, and incompetent.

A. In February last the price of steel and pipe had reached the lowest point touched, I think, since pipe has been made, and that exact date or any time within sixty days either side of it would have made the cost of the system very much less if all material had been bought at that date than at any other time. In general I think the system could be duplicated with the same materials at the present time for in the vicinity of two-thirds its original cost.

Q. Would that be true of February last?

A. In February last the cost would have been for a few weeks; all materials being purchased, the cost would have been reduced somewhat.

251 Q. You include in the system the dam and pipe line?

A. I do; the entire water plant as originally constructed.

(A recess is taken until 1.30 p. m.)

Afternoon session.

H. N. SAVAGE recalled.

By Mr. GIBSON:

Q. Mr. Savage, you say that the system, including the dam and pipe line No. 1, could have been duplicated in February last for about two-thirds less than the original cost; is that it?

A. It could be duplicated for two-thirds of the original cost.

Q. Two-thirds of the original cost?

A. Yes, sir.

Q. That would be $33\frac{1}{3}$ per cent. less than the original cost?

A. Yes, sir.

Q. In dollars, please put it; what could the dam be duplicated for on that basis?

A. The foregoing estimates are based on general judgment and a knowledge of the cost of the materials and not on a carefully compiled estimate of the details. The cost of the dam is given by the constructing engineer as \$234,074.11.

Q. That is the original cost. Now, to get what it could be duplicated for—could have been duplicated for in last February—deduct one-third?

A. Yes, sir.

Q. Now, pipe line No. 1.

A. The cost of the pipe lines as originally laid as given by the constructing engineer was \$502,763.86.

Q. And to get at what that could have been duplicated for in February last you would deduct one-third?

252 A. According to the previous estimate we would deduct one-third.

Q. Now, do you know, Mr. Savage, what entered into the cost of the dam and of pipe line No. 1, as given by the engineer in charge, under whose supervision they were constructed?

A. I have his statement given in a paper prepared by him and read before the American Society of Civil Engineers in November, 1888, in which he gave the details making up the cost of the dam as follows:

Mr. GIBSON: All we want to get at is to show whether the statement of the total cost includes anything but the cost of labor and material.

Mr. WORKS: We might as well let it go in and that will show just what it does cover.

The statement is as follows:

Plant—tools, etc. \$6,236.76

Materials:

Cement.....	63,111.03
Cement hauling.....	8,614.18
Lumber.....	2,408.08
Iron-work... ..	4,915.99
Pipes, gates, etc.....	5,152.58
Miscellaneous materials, powder, etc.....	3,229.84

87,431.70

Labor:

Common and skilled labor.....	93,590.55
Foremen.....	6,866.49
Teams.....	19,696.12
Engineering, salaries and expenses.....	10,555.20
Clerical work.....	653.88
Earth-work (contract).....	7,666.51
Miscellaneous expenses.....	1,376.90

140,405.65

Total..... \$234,074.11

253 And the details of the cost of the pipe system, pipe line No. 1, are as follows:

Pipe.....	\$301,928.80
Freight.....	39,183.03
Distribution.....	6,271.06
Gates.....	1,849.62
Materials, tools, etc.....	5,932.57
Right of way and miscellaneous expenses.....	2,968.00
Pipe-laying.....	144,630.78

Total..... \$502,763.86

It should be stated in this connection that the cost of the flowage tract for the reservoir is not included in the above.

Mr. WORKS: Do you know what the cost of that was?

WITNESS: No, sir; I do not know only from hearsay.

Mr. GIBSON: We would rather take the cost from the books on that.

Q. On the same page that you have last referred to, page 216, Mr. Schuyler in his report gives under head of probable duty of the works the duty of the reservoir and the pipe system as follows:

"One of the most interesting questions to the stockholders of the company is the result that may be reasonably expected in the way of irrigation from such a reservoir. The assumption is made that in average years, say three out of five, the water-shed will yield a sufficient supply to fill the reservoir, besides maintaining the consumption through the rainy season, thus starting on the irrigation season, about May 1st, with a full reservoir. From May 1st to October

1st is the average season of irrigation—about one hundred and fifty days. Where pipe distribution is in use, a fair average allowance in southern California is a duty of ten acres per miners' inch (five hundred acres per cubic foot per second). There are instances
 254 of a much higher duty having been attained—a duty of even forty acres per miners' inch having been accomplished in one place. Allotting 700,000,000 gallons for the annual consumption of National City, and for loss by evaporation during the summer months, the remainder would yield a flow of 2,000 miners' inches per day for two hundred days; with a duty of ten acres per inch this amount would irrigate 20,000 acres. In the course of time it is expected that a duty as high as twenty acres per inch will be reached; in which event a reservoir full may be extended over two years' time, and still irrigate 20,000 acres, and afford a domestic supply to the town of National City.

Water rights giving to the purchaser simply the privilege of becoming a customer for water have been sold on the San Diego Flume Company flume at the rate of \$2,000 per miners' inch. At this rate the value of the irrigation supply of the reservoir is \$4,000,000. The construction of the works has already added a value of \$1,500,000 to the principal tract of five thousand acres, which has been supplied with a complete system of water pipes, and another million to the value of town property in National City and lands in its immediate vicinity."

Now, you can go on and state what the difference by actual practical demonstration is between its probable duty as given by Mr. Schuyler and what experience has demonstrated, if any. Give any explanation of it that experience has shown is not in accordance with the prognostication.

A. The duty of the works as outlined by Mr. Schuyler was based on a reservoir full at the beginning of the irrigation season and on his estimate of the amount of water which would be required for
 irrigation, and undoubtedly this estimate was based on the
 255 region having a rainfall largely in excess of what it actually has, as the quantity of water estimated by Mr. Schuyler to be required was only a small portion of what is being actually used by irrigators. As to the quantity of water available at the beginning of the irrigation season, we find in actual practice that the yield of our water-shed and the yearly run-off is not only not sufficient to fill the reservoir every year, but in some years practically no run-off is available for storage. The year 1893-'94 the total yield of the drainage basin was less than one-half billion gallons, and from reliable data compiled by the witness the year 1876-'77 the probable yield of the drainage basin was not to exceed one-fifth of one billion gallons.

Q. Were not those two years you have referred to unusually dry years?

A. They were, sir.

Q. Hasn't experience shown that in average years, say three out of five, the water-shed will yield a sufficient supply to fill the reser-

voir besides maintaining the consumption throughout the rainy season, as stated by Mr. Schuyler?

A. The average yield of the water-shed is of no use in furnishing information for determining the duty of the works which are dependant on the minimum year's yield of water from the drainage basin.

Q. Is it not a fact that since 1888 there has not been a year, except the winter of 1893-'94, but what the reservoir could have been filled?

A. It is a fact that it could not have been filled if empty in either one of three of the six.

Q. There was no season except '93-'94 but what more than 256 a billion gallons ran into the reservoir, was there?

A. There was not.

Q. Is it not a fact that the supply of water pouring into that reservoir has proved by experience to be greater than was anticipated when it was projected and in course of construction?

A. The quantity of water the water-shed would likely yield was a matter of personal opinion only. The results of careful measurement show the yield from this drainage basin to be conspicuously less than the yield likely to be expected from a water-shed having the location and average rainfall of this one.

Q. You say that is a mere matter of personal opinion. Was not that opinion based upon the very best data obtainable and upon calculations made by competent and experienced men?

A. There was no data at hand on which to estimate safely what the yield from that drainage basin would be. No doubt the constructing engineer, however, used all the data obtainable.

Q. Well, according to the experience of the company with regard to the amount of water impounded since 1888, it does not appear that the estimate made by the constructing engineer falls very far short of the fact; if so, I wish you would point it out.

A. It falls very short of the fact by reason of the remarkably small yield of the drainage basin in a dry season.

Q. Drier seasons prior to the construction of the dam and the creation of the reservoir had occurred than in seasons since then; is not that a fact?

A. There had; yes, sir; but at that time the rainfall on this coast had not been studied. There was in existence no data that could be used as a basis for estimating the probable rainfall at higher 257 elevations, and there were absolutely no reliable observations to be had of rainfall in the higher elevations of the water-shed.

Q. Yes; but the rainfall along the coast had been observed, had it not, from San Diego to San Francisco from early in the fifties?

A. Yes; but there was no known data that could be used as a basis for estimating the comparative quantity of rain that would fall inland, using the rainfall at the coast as a basis.

Q. Yet wasn't it a matter of common knowledge that the rainfall was heavier inland than along the coast?

A. It was; yes, sir.

Q. And that the mountains, owing to their elevation, seemed to attract or cause the precipitation of more rain than between the foot-hills and the coast?

A. Yes, sir; it was supposed that the rainfall in the mountains would be largely in excess of that at the coast.

Q. The table that you stated you prepared in 1894 and from which you testified respecting the rainfall in the drainage basin supplying the company's reservoir, you have there a theoretical ratio of the increase of rainfall per each 100 feet of elevation?

A. In the table and sketch the probable yield of the water-shed in the past is based wholly on the rainfall as observed at Sweetwater dam and the actual yield of the water-shed as measured at Sweetwater dam. The increase in rainfall, due to the elevation, has been developed since that table was made up, and the results obtained from it are of assistance in proving the accuracy of the table in the previous assumptions.

Q. Well, now, assuming all that to be so, and at present we do not know any reason why it is not a correct assumption, yet you have made no allowance in that calculation for the difference in run-off, as you call it, from different portions of the water-shed, isn't there a difference, owing to the inclination of the soil, the character of the soil, and whether it is covered with trees, brush, or merely consists of exposed rock?

A. That does not enter in any way as a factor into this computation. These computations are based upon run-offs, as observed, and upon actual total annual run-off of the entire water-shed as a whole; not taken in its individual part.

Q. That assumes, then, that that embraces all the water that would fall in that drainage basin in a year, and that would run off in a year?

A. This data as observed, which is the basis for the estimates for the past, is based on measurements of the exact quantity that did run off.

Q. And that reached the reservoir?

A. That reached the reservoir.

Q. You do not know what percentage, then, the amount so received into the reservoir bears to the whole amount that fell in the water-shed or in the drainage basin, do you?

A. I think I have something of an estimate of that, or I could compute one for you and turn it in, if you would like.

Q. If it would not take too much time. We do not care to put you to any particular trouble about it.

A. Let me see if I have something here. I am satisfied of the reliability of these figures, as they are based on my own observations and I am willing to follow them.

Q. Very well, as long as it is something you personally assisted in.

A. In order to get the per cent. which the run-off was of the total rainfall in the system it is necessary to make some averages, since the rainfall in different portions of the drainage basin varied very largely from what it was in other portions of the drainage basin.

Q. Just strike such an average as you think, in your judgment as an engineer, is safe and proper.

A. For example, the run-off as observed in the years 1893-'4 were as follows:

259	San Diego.....	4.87
	Sweetwater dam....	6.20
	Descanso.....	19.42
	Cuyumaca.....	21.35

The observation from Cuyumaca, as given, 21.35, includes an estimate of the amount of precipitation included in the snowfall. The actual rainfall, without the snow included, was 14.55 inches. And 1890-'91 the observed rainfall being in—

	San Diego....	10.47
	Sweetwater dam...	12.65
	Descanso..	30.25
	Cuyumaca.....	63.13

which gives some of the varying rainfalls, and in computing the actual probable rainfall over the drainage basin comparison is had between these rainfalls and the rainfall in San Diego, reference being had to the probable increase in rainfall per hundred feet increase in elevation, and the average rainfall over the system obtained in this manner. Then from this average rainfall and the run off as measured at the dam the following per cents. follow:

In 1888-'89 12 per cent. of the rainfall reached the reservoir.

1889-'90 14 per cent.

1890-'91 9 per cent.

1891-'92 4 per cent.

1892-'93 8 per cent.

1893-'94 1 per cent. only,

this last being the season of minimum rainfall observed since the construction of the dam and water system; and in 1894-'95 26 per cent.

Q. Then the percentage increases with the increased quantity of rainfall?

A. It does.

Q. Now, is the increase of rainfall per hundred feet in elevation uniform?

A. It is very uniform indeed.

Q. It does not vary, then, to any great degree at different altitudes?

260 A. On this western side of this western mountain range the increase of rainfall is very directly as the increase in elevation from sea level up to the summit of the mountains.

Q. Are Descanso and Cuyumaca in the same mountain range; and, if so, how far apart? You gave the location of Descanso yesterday, but Cuyumaca you did not.

A. They are substantially in the same mountain range and ten miles apart, Cuyumaca being a little east of north of Descanso, the elevation of Descanso being approximately 3,500 feet and the eleva-

tion of Cuyumaca, where these observations were taken, about 4,800 feet.

Q. Now, you testified yesterday respecting the evaporation of water at the dam and described the means whereby the evaporation was determined. You said that in 1889, for instance, the loss by evaporation computed by inches was 57.54.

A. Yes, sir; those quantities were obtained in two ways—one by Piche evaporimeter, the instrument used by the United States Government in determining evaporation, and the other process was by direct measurement in a partially submerged iron pan constructed for the purpose and maintained some distance from shore in the Sweetwater reservoir.

Q. Those were vertical inches that you refer to?

A. Those were vertical inches.

Q. Of course, that evaporation occurred at various contours, according to the depth of the water in the dam, did it not?

A. It did, sir.

Q. In order to make use of the evaporation in determining the capacity of the dam, it would be necessary to give us a percentage, because, as you gave the evaporation in vertical inches, the contour is not known. If you can deduce from that the loss per year and express it in percentage we would like to have it.

261 A. The evaporation is observed every day and records are kept by us showing the exact elevation of the water in the dam, the quantity stored, the area of the exposed portion, and from this data the actual evaporation is obtained.

Q. You said that you would take time to compute the percentage; have you computed it yet?

A. No, sir.

Q. What we want to get at is the loss expressed in percentage by evaporation per annum.

A. The loss by evaporation per annum has absolutely no fixed per cent., but depends wholly upon the area exposed per annum. In the season following a heavy rainfall, when the reservoir is full, the evaporation would be several times what it would be in a season when the reservoir was only half full at the beginning with a correspondingly less area exposed. For the purposes of our investigations and deductions as to the duty of the reservoir we have to take two seasons combined and the total loss by evaporation for those two seasons, which may be taken as an *an* entire quantity and can be given you directly.

Q. Very well.

A. The basis on which we arrive at the safe and maximum duty for irrigation of the Sweetwater reservoir is as follows: Taking the reservoir as full at the beginning of a season, and since that quantity with the amount of a minimum year's yield is the total supply for two years, less the evaporation, it is proper to take the total evaporation as going on while the reservoir is one-half full. The evaporation as observed at the Sweetwater dam may be taken as

58 inches per year approximately, which would reduce the total quantity of water available from 5,877,072,000, the exact total capacity in gallons of the reservoir, by 1,440,000,000 gallons, leaving 4,437,072,000, to which we will add the minimum year's yield as actually measured at the dam since its construction, which amounted to 450,000,000 gallons, making a total of 4,887,072,000 gallons available for two years' actual use, or 2,443,536,000 gallons available for a single year's use, which would give 6,000 acres of land a supply of 407,000 gallons per acre. It is proper to take the evaporation as above for two full years because of the uncertainty attending the annual rainfall. One may be early in the rainy season and followed by a dry year, and the next flood may not occur until late in the rainy season.

Q. Please express that loss by evaporation in percentage.

A. Twenty-four per cent.

Q. Do you mean to say that the present pipe system will irrigate only 6,000 acres or, rather, all the land that is under the flow, provided you have water sufficient to furnish all the lands? In other words, is the system capable of distributing water to all the lands under it that may be supplied by it, assuming that the dam is capable of furnishing the water?

A. The amount of irrigable land comprehended by the distribution system is not a fixed quantity. Laterals and pipes of individual irrigators might be extended from the present system to a much larger area of land than the pipe system could supply.

Q. Well, to how much greater area than the 6,000 acres might it be extended? Would it irrigate the 13,000 acres, provided there was sufficient water?

Mr. WORKS: Do you mean without any additional extensions, just as it is now?

263 Q. Just as it is, excepting the proper lateral connections and without any extensive extensions of the main pipes?

A. The system as constructed at the present time, including pipe line No. 2, can reasonably be expected to deliver sufficient water to irrigate 6,000 acres. The ability of the system to deliver more water would depend largely on the elevation of the land requiring the additional water, and also on the method of delivering this water, whether it were delivered under a constant pressure or whether it were delivered subject to the water-takers taking their supply at certain defined times.

Q. Well, if it were delivered under suitable regulations—suitable and reasonable regulations—for the delivery of the water?

A. I am unable to state the exact quantity of water that the system could be made to deliver. It has been the intention of the engineer to so design the extensions built during the last five years as to enable the system to deliver all the water that could be stored in the present dam and depended on for irrigation throughout seasons of minimum rainfall.

Q. And still you think that more land could be reached than that already under irrigation by the system?

A. The system is now irrigating in the vicinity of 4,000 acres,

and it is expected that that can be increased to in the vicinity of 6,000 acres, with such lateral extensions as may be necessary.

Q. What area was under irrigation before pipe line No. 2 began to be used—but I will ask you first is pipe line No. 2 yet completed?

A. Pipe line No. 2 is not completed 24-inch diameter its entire length. There is a short section of 12-inch pipe which has been used temporarily and will be removed and pipe line No. 2 made continuous 24-inch diameter probably in the next thirty days. We have, however, had pipe line No. 2 in service since June 30th and so constructed—

264 Q. June of this year?

A. June 30th, 1895, and so constructed as to enable us to deliver in a satisfactory manner water to all of our consumers.

Q. What area was under irrigation in February last?

A. I have before me some computations made for my own information which are approximately correct, although they are not accurate, as sufficient time was not taken to go through the books. There was about 4,000 acres under irrigation when pipe line No. 2 was put into service.

Q. And the same in February last?

A. Yes, sir.

Q. Then there has been no practical increase in the acreage by virtue of the use of pipe line No. 2; simply a betterment of the service? Is that it?

A. Since February there has been a considerable acreage planted that is being irrigated from pipe line No. 2, and there has been also a considerable acreage supplied under water rights which are obtaining their water by force, against the will of the company, previous to the completion of pipe line No. 2.

Q. State whether or not that increase of acreage put under cultivation does not largely consist of lands owned by the company.

A. The greater per cent. of our development this season has been the planting of orchards by the horticultural department of the land and town company, although land has been supplied with water throughout the entire length of the distribution system to land not owned by the company, in addition to what was under irrigation previous to the completion of pipe line No. 2.

Q. State the character of the pipe from Eighth street through Paradise valley and whom it serves—that is, Eighth street, National City.

A. There is laid on Eighth street or Paradise valley, National City, a continued 6-inch pipe line extending from two blocks
265 west of National avenue easterly throughout the length of the valley, and extending about 1,000 feet beyond the eastern city limits. There is also an 8-inch pipe line supplementing the supply to this 6-inch pipe line from the terminus of a 13-inch pipe line which extends from near the bay front easterly a little over two miles, which was originally laid in anticipation of the construction of either a reservoir site in quarter section 107, near its eastern higher terminus, or for a connection with a higher service pipe line

which has been constructed under the name of pipe line No. 2, which terminates at the intersection of this 8-inch line and the 13-inch line at Sixteenth street.

Q. How much outside land does this extension which you first mentioned on Eighth street eastwards supply?

A. Twenty-five acres.

Q. What is that letter "L"?

A. The letter L in red lines circle inclosed represents that water is being supplied to land that is at an elevation as high or higher than is possible to be served by the Sweetwater system.

Q. I direct your attention to quarter section 111, where a pipe leaves the main pipe line running in a northerly and easterly direction. State what that is and the size, and so forth.

A. That is a 6-inch pipe line the major portion of its length, reducing to a 4-inch pipe line, and is used to deliver water to the property-owners in what is known as Keene's valley.

Q. Which is higher—where it connects with the main line or at its exit in Keene valley?

A. It leaves the 30-inch main line at an elevation of about 35 feet above sea level and terminates in quarter section 83 at an elevation of about 130 feet above the sea level.

Q. What does the letter "T" mean?

A. The pipe lines on the topographical map referred to—Complainant's Exhibit No. 5—are shown in red. The different
266 kinds of pipe are also indicated in red, the letter R referring to Risdon wrought-iron riveted pipe; the letter T to kalamined tube pipe; the letter S to spiral riveted pipe, and the word "steel" referring to steel riveted pipe. The sizes or diameters of the pipe are also shown in figures, and there are on this map certain figures in red enclosed in red lines showing the actual elevations at which we are attempting to deliver water for irrigation. The letter L represents the limit and in cases of an elevation which is above the elevation of the water in the reservoir at the end of a dry season.

Q. Give the length of the pipe extending from the main line where it passes through the northern part of quarter section 111 up into quarter section 83.

A. About 9,000 feet.

Q. I now direct your attention to the connection made in quarter section 31 with the main pipe line extending south and thence east into quarter section 22. State the size, length, and character of the pipe.

A. It leaves the main 30-inch pipe line and extends south about 1,000 feet, a 6-inch-diameter kalamined tube pipe, thence running easterly about 2,000 feet, a 4-inch-diameter kalamined tube pipe.

Q. And supplying water at what elevation—near the limit on the elevation?

A. Supplying land at an elevation of about 140 feet.

Q. What is the elevation of the point on the main line where it connects?

A. In the neighborhood of 80 feet.

Q. Give a similar description of the lateral pipe line running north in the same quarter section.

A. The lateral pipe line running north in quarter section 31 is a 4-inch kalamined tube pipe extending north about $\frac{1}{4}$ of a mile.

Q. What is the elevation of the exit?

267 A. The elevation of the terminus of that pipe is about 130 feet, the water being taken from there and used by the consumer, a portion of it at an elevation of about 165 feet.

Q. That is, the consumer elevates it beyond the elevation of the terminus himself with his own appliances?

A. He does; yes, sir.

Q. What is the elevation of that point of connection on the main line?

A. In the neighborhood of 80 feet.

Q. Referring to quarter section 23, there is a pipe line extending in a southeasterly direction, thence south, and thence east. Describe that.

A. The pipe line leaving the 30-inch line at an elevation of about 90 feet in quarter section 23 runs southeasterly about 1,000 feet. The major portion of it is 8-inch-diameter spiral pipe, with a little 8-inch kalamined tube pipe; thence continuing south one-quarter of a mile, 6-inch-diameter spiral pipe; thence east about 1,000 feet 6-inch spiral pipe, reducing to 4-inch kalamined tube pipe, and extending some 200 feet farther to the terminus, supplying land mostly high in elevation, from 100 feet up to the limit of the system. This last pipe supplies water under what is known as the Kimball extension contract.

Q. Describe the laterals leaving the main pipe line in quarter section- 48 and 73, on the same map.

A. A 4-inch kalamined tube pipe leaves the 30-inch main near the boundary between quarter sections 47 and 48 at an elevation of about 70 feet and runs south a distance of about 800 feet, supplying lands in elevation from 70 feet to the limit of the system. Another 6 inch kalamined tube pipe leaves the 30-inch main in quarter section 47 and runs north a distance of about 800 feet, supplying lands at an elevation of about 125 feet. A pipe line or lateral

268 leaves the 30-inch main near the boundary line between quarter sections 47 and 58, running south a distance of about a thousand feet, and supplies land at an elevation of between 80 feet and 125 feet. This is a 4-inch kalamined tube pipe.

Q. What is the elevation where it leaves the pipe line?

A. About 70 feet. Another 4-inch kalamined tube pipe leaves the 30-inch main near the boundary line between quarter sections 58 and 73, running south about 1,000 feet and supplying lands in elevation between 75 feet and the limit possible to be reached by the system.

Q. What is the elevation where it leaves the main?

A. About 70 feet.

Q. Where is the point of division on the main line for supplying National City territory on the north and Chula Vista and Otay on the south?

A. The 30-inch main terminates at the intersection of Fourth avenue and E street, in Chula Vista, at an elevation of about 90 ft., the water being taken from there in two 24-inch-diameter pipes and one 6-inch-diameter pipe, one 24-inch pipe running south as the main feeder of the Chula Vista distribution system, the other continuing west as the main supply pipe for the National City portion of the distribution system.

Q. How are the contours shown on that map?

A. The map referred to is the topographical map, with the contours of the country shown by white lines, with the elevations of these contours shown by figures at frequent intervals throughout the lengths of the contour lines.

Q. Does that map also show the subdivisions into lots and blocks as they are actually made?

A. That shows the subdivisions in Chula Vista into ten-
269 acre and five acre tracts, with the streets and avenues substantially as they are. In National City this shows a subdivision of the lands from quarter sections into ten-acre and five-acre tracts and blocks of two acres and a half, somewhat approximately as the blocks are, but no lots are shown.

Q. What is the size of the lots in National City where they are divided into lots?

A. The size of the lots in National City where they are divided into lots is generally 25 feet front by 115 feet in length, although throughout National City there are numerous methods of subdivision and different-sized lots. The city ordinance under which we are acting defines the size of a lot as 25 feet front by 115 feet in length, and we have taken that as the basis in ascertaining the number of lots in National City, although in some cases the actual subdivision is into lots of 50, more or less, feet front and of different lengths.

Q. In the territory subdivided into lots most of the lots are of the size you first mentioned?

A. They are 25 feet front by 115 feet in length.

Q. What is the width of the streets?

A. The width of the streets is wholly 80 feet. The avenues are mostly 80 feet, National avenue and Eighth avenue being 100 feet in width each, the avenues running north and south and the streets running east and west. In the case of some of the subdivisions of 5-acre and 10-acre tracts into lots and blocks, adjacent tracts have not been subdivided, so only one-half of the streets and avenues are opened. The map from which this information is taken is a copy
of the official map of National City as accepted by the trustees
270 and as prepared by the city engineer, Mr. Fred Copeland, in July, 1891. There have been a few streets closed; otherwise the map is as they exist today, to the best of my knowledge.

Q. Can you give us the capacity of the pipe line No. 1 at the terminus of that line at E St. and Fourth Av., in Chula Vista?

A. With the reservoir reasonably full the main 30-inch pipe line would deliver about 1,200 miners' inches constant flow. This quantity, of course, is wholly dependant on the quantity of water being

taken from the main pipe line through the numerous laterals throughout its length between the reservoir and the terminus at Fourth avenue and E street.

Q. What effect would those laterals, if drawing water, have upon its output at Fourth avenue and E street?

A. A direct influence.

Q. To what extent would it affect its capacity in inches?

A. Substantially diminishing it in a direct quantity depending upon the quantity being delivered through these numerous laterals.

Q. Can you express that in inches? You say it would deliver, if the reservoir was reasonably full, 1,200 inches at Fourth avenue and E street?

A. Yes, sir.

Q. Now, assuming that it was supplying water through those laterals between the reservoir and Fourth avenue and E street, how much would it decrease its capacity at Fourth avenue and E street, expressed in inches?

A. The laterals are supplying water to lands of differing elevations, and I never have had occasion to compute, even approximately, the capacity of these various lines. It is, as they are
271 delivering water now, only a small per cent.

Q. Well, as they were delivering it in February last?

A. I would estimate it at less than five per cent.

Q. That is, it would diminish less than five per cent. of 1,200?

A. Yes, sir.

Q. If there were a free discharge at Fourth avenue and E street the point of exit, from the pipe line into the atmosphere, would the pressure of the water be sufficient to furnish water through all of those laterals at the same time?

A. It would not; not if they are higher elevations.

Q. Is it not necessary, then, in order to supply water through those laterals to compress the water at some point below each of the laterals?

A. It is necessary that the system be maintained as a constant pressure system in order to supply water to high points throughout the entire system.

Q. But more particularly as to the points supplied beyond E street and Fourth avenue?

A. The necessity of restricting the quantity of water taken from the lower elevations of the system is equally necessary for the delivery of water throughout the entire system, regardless of any one point.

Q. Yes; but supposing you were furnishing water now in National City under pressure which, as you say, is necessary owing to the manner in which the system is constructed, and you were supplying water at the same time through the laterals between the dam and Fourth avenue and E street, does it not materially diminish the ability to supply water in National City on the higher elevations and yet lower than elevations furnished through the laterals
272 on the main pipe line.

A. The water taken from these laterals that are extended

from the main 30-inch pipe line is usually taken on to lands which have very much higher average elevation than is the average elevation of lands supplied in National City. However, the very small quantity of water being taken from these laterals, where they are lower than higher lands in National City, does, of course, take so much water and assist in reducing the pressure directly in proportion to the small quantity so taken.

Q. Have not the company within the last two years refused to supply higher lands in National City on account of the lack of or decrease in pressure in the pipes?

A. The company have refused, just so far as their engineer could persuade them to, to undertake to supply lands at high elevations throughout the entire system—Sweetwater valley, Chula Vista, National City, and Ex-Mission—due to the fact that we have throughout the two tracts of National City and Chula Vista considerable more land at low elevations than the water will supply, and the system can very much easier supply a number of acres of low land than a very few acres of high land. The company are now in selling their water restricting their obligation to deliver water at elevations beyond which they can expect to reach with safety to the system when it is delivering the total quantity that can be depended upon from the reservoir, and that rule holds true throughout the system. Applications have been prepared at the engineer's request and are signed by water-takers releasing the company from obligation to deliver this water at an elevation greater than the hydraulic

273 grade line of the new pipe line that extends and includes the orchard planted by the company this season.

Mr. WORKS: You mean excludes its own lands from the right to water?

WITNESS: It excludes its own lands from the right to demand the company to furnish water at an elevation greater than it can safely contract to supply when the entire system shall be delivering the maximum quantity available from the storage reservoir at elevations varying from 160 feet at the dam to 145 feet at National City.

Q. Yet the company has sold those high lands, has it not, and is offering them for sale?

A. The company has sold lands—the company has undertaken to supply water to high lands sold by itself and to high lands sold by others.

Q. When you say sold to itself, you mean simply put under the control of the horticultural department?

A. I mean actually sold.

Q. To itself?

A. To outsiders.

Q. I understood you to say to itself, also.

A. I did not intend to say so; and it now restricts its obligation to deliver water to lands sold by itself or to water furnished to other parties to an elevation not exceeding the hydraulic grade line of the new pipe line known as pipe line No. 2.

Q. But prior to that rule being adopted or put in force the company advertised that it had lands for sale and sold lands regardless of its ability to deliver water at these higher elevations, believing at the time it could do so?

A. The company sold a very little high land and has undertaken to supply water to very little high land since the witness has been in its employ.

Q. It yet has sold some, has it not?

A. I don't know of any.

Q. And is furnishing water to irrigate high lands?

A. Very little.

Q. Well, it has some?

A. I don't recall any water being furnished since I had charge of the system to elevations that we can't reasonably supply, and in some cases water has been furnished, but under special contract that the company shall not be under obligation to deliver water at greater elevations than it can reasonably supply.

Q. That is under a rule which you have recently adopted?

A. No; that is under a rule that is adopted several years ago. In the case of Paradise valley and other sections where pipe lines had been extended by the company, water being demanded in excess of the capacity of those pipe lines for high lands, a special clause was inserted in the contracts. Since the construction of pipe line No. 2 a special form of application has been gotten out having printed that clause.

Q. Where is the terminus in National City of pipe line No. 2?

A. It is at the eastern end of the 13-inch cross pipe line on Sixteenth street, at a point where the 9-inch pipe leaves the eastern end of this pipe, and runs north into Paradise valley on the section line between quarter sections 106 and 107. Pipe line No. 2 leaves the Sweetwater dam on the south side of the canyon in quarter section No. 3 and runs thence southwesterly through the quarter section, following as nearly as possible a grade contour on the north side of the Sweetwater valley, the spurs of the hills being taken as controlling points and the pipe line made as nearly straight as possible between those controlling points. It runs through quarter sections 24, 23, 30, 31, 48, 57, 74, 73, 83, 100, 108 and northerly across quarter section 107 to its north boundary line. It has a diameter of 24 inches from the dam down to the south boundary line of quarter section 107, where it divides into a 20-inch line and a 12-inch outlet, through which water will be taken, and a pipe line extended to the connection with the city distribution system along 24th street, the main line running through quarter section 107, with a diameter of 20 inches, to the point of intersection with the afore-said Sixteenth Street 13 inch pipe line, where it terminates, feeding this Sixteenth Street 13-inch line, and also the 9-inch and 8-inch line running into Paradise valley.

Q. How many laterals has it between its outlet terminus and the reservoir?

A. As laterals it has none. It has a number of services, and there are several miles or several thousand feet of 4-inch lateral services

in quarter sections 83 and 100, taken off by the horticultural department for the supply of its orchards, but these pipe lines were put in at the sole expense of these orchards. There is also a connection in quarter section 83 with the extreme end of the Keen Valley line.

Q. The orchards you refer to are the company's orchards?

A. Are the company's orchards, planted since the construction of this pipe line.

Q. What is the difference between a "service" and a "lateral"?

A. The difference between a service and a lateral, as used by the witness, is that a lateral is a pipe line constructed by the
276 water department as a part of its distribution system, and a service is a pipe line constructed for a water-taker at the water-taker's expense, regardless of the sizes of these lines.

Q. Then how large are those different service pipes?

A. Those service pipes vary in size from 2 inches to 4 inches in diameter.

Q. And in length?

A. In length. The 2-inch services and the 4-inch services are part of the consumer's personal distribution systems and vary in length according to the location and area of the lands supplied. In the case of Charles O. Brown's service, in quarter section 23, he has a total of five services, four of them 2-inch and one of them 4-inch, and he has on his premises in the vicinity of one mile of distribution pipes from 4 inches in diameter down. In the case of the horticultural department of the land and town company they have six services, four of them 2 inches in diameter and two of them 4 inches in diameter, with a total of about one and one-half or two miles of distribution pipes varying in size from 4 inches in diameter down to 3 inches in diameter, with a very little 2-inch pipe. In the case of a majority of services taken out the extensions and distribution systems of the water-takers will probably be somewhat less than the above lengths, but depending wholly on the area and location of the land as already given.

Q. What is the general elevation of the land? Give instances of it above the point where the service pipe is connected with pipe line No. 2 and the point of exit.

A. They vary very greatly. In places pipe line No. 2 descends to an elevation of about 30 feet above sea level, with one
277 service taken off at this elevation. The majority of the services on pipe line No. 2 are probably taken off from pipe line No. 2 at elevations varying from 160 feet down to 75 feet, and the elevations of the highest outlets of these distribution pipes vary in elevation from 30 feet up to as high as 187 feet.

Q. Well, now, are you giving the elevation above the sea level or above the main?

A. All elevations above sea level.

Q. What is the general elevation of the pipe line No. 2?

A. The general elevation of pipe line No. 2—

Q. Between the 30-foot elevation and the dam?

A. Starting from the dam at an elevation of about 170 feet, the

hydraulic grade line of the pipe line above which the pipe line does not get an elevation runs in a uniform grade from 165 feet at the dam to 145 feet at the terminus of this line, in quarter section 107, and about one-fourth of the pipe line is laid directly on this hydraulic grade line, with numerous inverted syphons along the line, the bottom of these inverted syphons going down to elevations varying from 30 feet elevation above sea level up to the aforesaid hydraulic grade line. The average elevation of the pipe line probably would be not greater than 25 feet below this hydraulic grade line, although the average elevation has no effect whatever on the delivering capacity of the pipe line.

Q. But the delivery of water through these service pipes at a higher elevation than the hydraulic grade line has an effect upon its capacity below, does it not, at its western point of discharge?

A. No, sir; because when it is delivering its full capacity
278 at its outlet terminus there would be no water at these higher elevations above the hydraulic grade line. The water level would not reach at any point in that grade line a pressure sufficient to throw it out of the pipe.

Q. I understand that, provided there was free discharge at the terminus?

A. Yes, sir.

Q. But will it not impair or diminish the capacity of the pipe to supply water, say, for instance, in National City to the higher territory there by supplying water through these services at higher elevations than the hydraulic grade line?

A. It will, but in a very small amount.

Q. It depends largely, does it not, upon the size of the pipe and the quantity of the water furnished—I mean of the lateral or service pipes? The effect of the lateral and service pipe in that respect is just the same?

A. Is identical; yes, sir. The elevation of the outlets of these services and laterals along pipe line No. 2, before it reaches National City, are so great as not to interfere but little in the delivery capacity of pipe line No. 2.

Q. Can you give the loss by deterioration of the dam, or depreciation, whatever you call it?

A. The depreciation or deterioration in the dam is a very hard estimate to make. I am inclined to think, however, that about two per cent., as given by the company's general manager, is as accurate as—

Q. Two per cent. per annum of the total cost?

A. Two per cent. per annum of the total cost.

Q. What is the per cent. of deterioration of the pipe line
279 No. 2, exclusive of the cost of replacing the spiral pipe, which was found to be defective?

A. Its depreciation I would estimate to be about six per cent.

Q. Six per cent. on the total cost?

A. On the total cost—that is, estimating the life of the pipe line at 16½ years. Of course, during that time there would have to be

considerable repairing done, which would be included in the six per centum per annum.

Q. Of what does the deterioration in the dam consist?

A. It consists in damage in this season due to flood; it consists in the wearing away of some of the iron fixtures and their replacements and frequent repairs that have to be made regarding the details. The main structure, of course, is stable, as proved by this flood.

Q. Is not the masonry work supposed to increase in value with age?

A. That is an open question, whether it does or not. Up to a certain time it unquestionably does. Beyond a certain time it is questionable whether it increases in strength, whether it holds its own, or whether it deteriorates. Different masonry structures have shown each of the three conditions after a very long time.

Q. What do you call this system of masonry that the dam is composed upon?

A. This is uncoursed rubble masonry.

Q. Has not experience shown in other countries that such masonry has stood for a great many years?

A. It has. We expect this will.

Q. Thousands of years; and where some of it has been
280 used and some has not been used and has been exposed to the elements without care or attention of any kind for a great many years it is still intact?

A. It is.

Q. Then the depreciation consists in the wearing out of the, you might say, metal appurtenances?

A. Yes, sir; largely, and also—we are putting on now at considerable expense work which has worn out, and we have to replace the numerous accessories frequently. In the matter of gates and other metal appliances for the manipulation of the outlets there is a constant depreciation, replacements having to be frequently made.

Hearing continued until Tuesday next, October 8th, 1895, at 9 o'clock a. m.

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TUESDAY, October 8th, 1895—Morning session.

H. N. SAVAGE recalled.

By Mr. GIBSON:

Q. Mr. Savage, with regard to the wasteway as it existed before the storm of the winter of 1895, was it sufficient in size for all ordinary floods?

A. It was not, sir.

Q. Was the parapet wall on the north end of the dam so constructed as to permit unusual floods to flow over it without injury to the abutment or the waste material that was banked up against the toe of the dam below?

A. It was not.

Q. Were those pipes leading from the dam so arranged as to admit of flood water pouring over the top of the dam without injury? I mean the outlet pipes that connect with the intake from the dam.

A. They were not.

Q. Then all the damage that accrued from that flood might have been avoided by proper and judicious appliances if they had been made in time?

A. If the constructing engineer had had sufficient data to have estimated the maximum flood, he could and doubtless would have designed and constructed wasteways of a sufficient capacity.

Q. Well, was not the engineer a man of large experience in California, particularly in the southern portion of the State?

A. He was probably as thoroughly acquainted with the conditions as nearly any engineer in the country. At the same time more dams have been wrecked because of insufficient waste-
282 ways than all other causes put together.

Q. Well, was it not known at that time, at the time the dam was constructed or being constructed, and especially when the wasteway was being made, that large quantities of water at times fell in the water-shed, which arose from an elevation of the level of the dam to, I think you said, 4,500 feet, didn't you, in height?

A. Yes, sir.

Q. And in some places the rise was very rapid, so that the water ran off and accumulated in the Sweetwater river to a very large volume in a very short time?

A. It was known that there would doubtless be floods, a portion of which it would be necessary to run off through wasteways. When the dam was built the river channels showed signs of ordinary winter flood to the extent of three to four hundred cubic feet a second, with some high-water marks in the canyon that indicated a possible extreme flood at times of 1,500 cubic feet per second. The wasteway was given a capacity equal to the high-flood marks and some excess was provided in the blow-offs. The probable maximum capacity of all wasteways and blow-offs at the dam as originally constructed was substantially 1,800 cubic feet per second. The flood in the spring of 1891 discharged into the reservoir for a considerable period at the rate of about 3,800 cubic feet per second, and during the winter of 1893 for one hour the flood reached a flow of a little over 5,500 cubic feet per second, and neither one of those were considered remarkably large run-offs.

Q. Well, was not the dam so constructed originally as to admit the flood water pouring over the top of it?

A. The dam was originally constructed in anticipation of
283 an overflow over its entire length, but it was not constructed to withstand any such cataract overflow as it experienced.

Q. Well, when it was known that such large quantities of water at times fell within a very short space of time so as to make a great volume in the aggregate that would pour through the natural channel across which the dam was constructed, would you deem it pro-

dent engineering not to have provided for such extraordinary freshets as you describe as having occurred in January, 1895?

A. Provision was made to double the capacity of the wasteway, and the capacity of the wasteway was doubled during the last flood, making its capacity something over 3,000 cubic feet per second, and, with the possibility and probability of a reservoir not full and an opportunity to store a portion of the flood as it came down, it was considered reasonably safe as the structure was designed.

Q. Yes; but what I am inquiring about is as to the prudence of so constructing the dam and wasteway originally, before this enlargement was made under your own supervision or direction, or both, as not to provide for an excessive flood. As I understand you, this wasteway was not enlarged until the flood actually occurred?

A. It was not; not from its second size.

Q. Was not the wasteway originally constructed as a mere temporary expedient to draw the water off from land that the company at that time did not own, but was seeking to acquire by condemnation?

A. It was not. It was originally constructed for a wasteway pure and simple. A tunnel was constructed at an elevation some
284 thirty feet below the wasteway, the tunnel being designed and constructed solely for the purpose of preventing the flowage of lands not owned by the company.

Q. That, however, was a mere temporary expedient, and was afterwards closed up, was it—the tunnel?

A. It was temporarily closed up.

Q. In what way? How was the closure made?

A. It was closed up in February, 1891, upon the company acquiring the lands, by the construction of a wooden bulkhead—a frame structure with doors—and subsequently I constructed a masonry bulkhead across the same tunnel at a point about 50 feet nearer its outlet than the location of the wooden bulkhead.

Q. Was that so as to permanently close it?

A. That was so as to permanently close the tunnel, if necessary, and to prevent any possible accident from the giving away of the wooden bulkhead, and to prevent and cut off a leak of some quantity, which water was percolating through seams in the rock around the wooden bulkhead.

Q. Now, will you say as an engineer, from your experience in Southern California, that it is ordinarily prudent to erect a dam across the mouth of a canyon or valley through which a stream flows that receives its water from an area that is very precipitous, varying in elevation from an angle of 45 degrees to those that are almost vertical over what is called the reservoir section, to a maximum height of about 6,000 feet, within a distance of twenty miles, taking into consideration the character of the rainfall in the mountainous region which in part constitutes the drainage area of your reservoir, without making suitable provision for the extraordinary
floods?

285 A. It is not.

Q. Now, you said something about a coating of pipe that

was necessary to protect it. Would the coating of pipe protect it from any such flood as occurred in January, 1895?

A. It would and did.

Q. I mean, it might protect the pipe from abrasion caused by detritus washing over it, but would it serve to hold the pipe in place?

A. It would.

Q. Just explain that.

A. The benefit to be derived from the covering would depend largely on the character of that covering. In the case of a portion of the covering on the 36 inch main pipe line through the Sweetwater canyon it assisted in protecting the pipe in several places. A portion of this covering, however, was lime mortar, with a coating of cement. This lime mortar was not strong enough to resist the erosion of water charged with rock, and in many places was entirely destroyed. Had that covering been of cement concrete entirely, it would have been much more beneficial. That portion of the pipe line where it crosses the river was mostly covered with cement concrete, and served to protect the pipe. The intention is now to cover the pipe line throughout the canyon in the exposed portion with good cement concrete, and we may reasonably expect it to be sufficient to protect the pipe.

Q. Pipe line No. 1, from its connection with the dam, was laid for a considerable distance down the canyon in the natural bed of the canyon, was it not?

A. It is for a certain portion of its length.

Q. That is the portion that was largely washed away by the flood, was it not?

286 A. It was; yes, sir.

Q. In describing the different sections to which water is supplied you mentioned territory supplied under what is known as—what you referred to as the Kimball-extension special contract, Kimball extension in quarter section five.

A. Yes, sir.

Q. Describe the manner in which water is furnished to that section, and on what terms and what quantity.

A. The pipe line known as Kimball extension line was originally laid under an agreement between the Kimball brothers and the land and town company, whereby the Kimballs agreed to and have paid a portion of the expenses of the pipe line. There is now being supplied through that pipe line water to in the neighborhood of sixty acres and seven or eight families.

Q. To what general elevation is the water supplied there?

A. The water is supplied at elevations varying from about seventy feet to the maximum elevation possible to be reached by the system.

Q. Just state that in feet again; it is 165 here.

A. The water is taken up to as great elevations as it will flow, and in some cases I think the individuals have planted trees at heights greater than the top of the Sweetwater dam.

Q. What is the highest elevation in that section that the water reaches or is calculated to reach?

A. It is 215 feet, the maximum height of the dam.

Q. Does that include the addition of the flash-board of the dam proper?

A. There is no flash-board addition; it is the elevation of the dam, 215 feet.

287 Q. You say about 60 acres are supplied?

A. A total of about 60 acres.

Q. And half a dozen families?

A. Yes, sir.

Q. About how much do they require for domestic supply, those six families?

A. It is a very inconsiderable amount, too small to materially affect the capacity of the pipe in any way.

Q. Where is J. M. Sharp's land that you referred to as being supplied by special contract; can you locate it on the topographical map in evidence?

A. Yes, sir. It is south of Chula Vista, distant about one-third of a mile from the south boundary line of Chula Vista, and receives its water supply from a pipe line which is laid on First avenue, Chula Vista.

Q. Well, that is in the locality adjoining Chula Vista on the south, that you have heretofore referred to as Otay district?

A. It is; yes, sir.

Q. How many acres in Mr. Sharp's tract?

A. Fifteen.

Q. That is comprised in the 185 acres or thereabouts that are supplied in Otay?

A. It is.

Q. But the agricultural lands and families outside of the town of Otay are supplied in the same way that people in Chula Vista are supplied, are they, upon the same terms and conditions?

A. Yes, sir, substantially.

Q. How much water is supplied to the town of Otay?

288 A. I have not in mind the number of gallons, although we have a meter and the quantity could be furnished you.

Q. Could you approximate it?

A. Yes; I could telephone and get it. (After telephoning:) It is 808,543 gallons.

Q. Otay is not an incorporated town?

A. I think it is not incorporated.

Q. Just give the highest elevations that you supply water to in Otay and Otay village.

A. The elevations vary from very near sea level up to about 150 feet. All the pipe lines, however, that convey water to lands in Otay run over the rising ground at the southern portion of Chula Vista, which varies in elevation from about 50 feet up to 150 ft.

Q. What is the elevation of the lateral pipe supplying Otay village?

A. About 115 feet.

Q. Now, to the agricultural section of Otay ?

A. That is, as already stated, from about 50 feet to 150 feet.

Q. How many laterals are there supplying the agricultural section ?

A. Five.

Q. Can you give the different elevation of their termini or points of discharge or delivery, or whatever you call it ?

A. The first one beginning on the west is a 6 inch lateral, located on Seventh street, extending west from National avenue, the elevation of its terminus being about 40 feet, the one on National avenue having an elevation of about 55 feet.

Q. The size ?

A. 6-inch. The one on First avenue has an elevation of 289 about 65 feet.

Q. The size ?

A. 6-inch.

Q. Are they all 6-inch ?

A. They are all 6-inch. The one on Second avenue has an elevation at its terminus of about 90 feet, the one on Third avenue supplying the town site with water for municipal purposes about 70 ft.; the one on Fifth avenue about 145 feet. The termini of these pipe lines, with the exception of the last, is at an elevation considerable lower than a short distance from the termini back towards the mains, where they run over rising ground.

Q. Now, these termini that you give, are they the termini of the company's pipes ?

A. They are.

Q. Or of the service pipes ?

A. The company's pipes.

Q. Then to what elevation do the services run from each of those termini, if you can give it ?

A. From elevations varying from their point of departure from the company's mains from 20 feet to about 75 feet.

Q. Does that mean 20 feet higher or lower ?

A. Lower.

Q. From 20 feet lower to 70 feet higher ?

A. Lower.

Q. From 20 to 70 feet lower ?

A. Yes, sir.

Q. Then they are all lower than the point of departure from the company's mains ?

A. No, sir ; there is one or two of them that is higher by 290 several feet than the point of departure.

Q. Can you indicate which those are ?

A. The pipe line taking its water from the terminus of the Seventh Street lateral of the company takes its water to a point about 20 feet in elevation above the terminus of the Seventh Street line.

Q. Any others ?

A. The majority of the use on the other lines being lower than the terminus of the company's mains. In one case water has been

supplied to the lands about 50 feet in height above the terminus of the pipe line on Third avenue.

Q. How is it with regard to the pipe line on Third avenue that supplies the village?

A. The use supplied to the village through the meter, with two exceptions, is lower than the termini of the company's lateral, one of these being about 25 feet above and the other some 50 or 60 feet. I think, however, the supply to this higher elevation has been discontinued because of insufficient pressure to force the water up to that elevation after supplying the use on the lower levels.

Q. You said in your direct examination that the section now covered by the system was wholly uncultivated excepting two tracts which you have named and described, and that the land is comparatively valueless without water for irrigation?

A. That was what I said and that is my opinion.

Q. Now, to go back, Mr. Savage, to National City again; there is one question that I asked you, but you answered in a general way; it was respecting the refusal of the company to furnish water to certain lands there for irrigation owing to lack of pressure.

291 Q. Will you describe those lands, if you can? Give the location of them and the names of the owners, if you know.

A. We have received during the past two years numerous applications for water to be used throughout National City. The following are some of the applicants' names: Water for the McSweeney tract, located in quarter section 104.

Q. Give the elevation of that tract, please.

A. (Referring to topographical map.) 140 to 165 feet, probably; also to a tract owned by Charles L. Josselyn adjoining this on the west and substantially of the same elevation; also John Kastle, owning adjoining land.

Q. Did you give the quarter section of those?

A. It is 104. That is in land just outside of the city limits receiving its water supply from a pipe line running through the city limits.

Q. That is Josselyn and Kastle both?

A. Josselyn, Kastle, and McSweeney.

Q. All those tracts are outside the city limits?

A. Yes, sir; in quarter section 105 water was refused to Mr. Barrett, Mr. Fowler, and Ralph Granger on lands varying in elevation from 100 feet to the limit possible to be supplied from the system, and in quarter section 130 to lands owned by Dr. Buxton's father, and in quarter section 106 to lands owned by Mr. Matthieson.

Q. Give the elevation of both of those tracts—the Buxton tract and the Matthieson tract.

A. The elevation of both varying from about 70 feet up to 110 ft.

Q. That is in both instances?

292 A. Yes, sir; one of those tracts, the Buxton tract, was located in quarter section 130, and the Matthieson tract is located in quarter section 106. Water was refused to Mr. M. C. Kimball in quarter section 129, on land varying in height from 65

feet to about 100 ft., and to George Kimball on land having an elevation of about 90 feet in quarter section 132, and to Robert Gatiss on lands about 90 feet in elevation on the same quarter section, and there were some other tracts of small dimensions. A portion of those lands have since been supplied with water because of the supply being increased by reason of the construction of pipe line No. 2.

Q. Well, that was since February last?

A. Yes, sir.

Q. When did the company first begin to charge for water rights, if you know?

A. In the fall of 1892.

Q. Prior to that time the company sold water to all consumers that could be supplied from its system upon paying the annual rates or meter rates, as the case happened to be, without any charge or demand for water rights, did it not, as far as you know?

A. It did, so far as I know, to consumers having lands that could be supplied from the pipe lines as they were then constructed.

Q. You say that the company has not made any profit on the water sold. Do you know that of your own knowledge or simply what you have been told?

A. I know that of my own knowledge.

Q. How do you know it?

A. From my knowledge of the rates charged by the company for its water and from my knowledge of the cost of the construction of a system of the magnitude of the Sweetwater system.

Q. In that conclusion, however, you have not taken into consideration the large amount of lands that have been sold by the company for which they have received large prices?

Mr. WORKS: We object to the question as being immaterial, irrelevant, and incompetent, and on the further ground that the question as to what may have been realized by the company from the sales of land is a matter not in controversy or material to this action.

A. The receipts from land sales was not considered in my answer regarding the profit. The amount of these land sales, however, would not change the fact.

Q. If the company received a million dollars from its land sales with which it sold water to supply, would it not affect the income of the company?

A. If the company had received a million dollars for land sold, it would affect the income of the company selling the land.

Q. You mean to say that it would not go to offset the cost of the water plant nor add anything to the revenue of the water department? Is that the way you mean to be understood?

Mr. WORKS: Let me enter an objection, to that.

Mr. GIBSON: All of this may go in under the same objection.

Mr. WORKS: It is a mere conclusion of law. The question is objected to on the grounds above stated and on the further ground that it is asking the witness for a conclusion of law.

A. The sums received by the company from the sale of its lands have not, to my knowledge, been credited to the water system.

294 Q. Is that the reason for your previous answer that you did not take into consideration the amount derived from the sale of lands and of water in connection with the lands in determining whether the company has derived any profit from water sold?

A. In my previous answer I stated that the company was not deriving a profit from its sales of water, and although the receipts for land sales were not considered in that answer, the fact would not have been changed if the amounts derived from these land sales had been considered.

Q. Why not?

A. Because the amounts received were not sufficient to have made the revenue of the water system sufficient to make it a profitable business.

Q. Do you mean to be understood as saying that simply because they were not large enough, or that they ought not to be considered, that it would not make it a profitable business?

A. In the first place, because they were not considered, and again because they were not large enough if they had been considered.

Q. Do you know, of your own knowledge, all that has been derived from land sales?

A. Not as the company's book-keeper throughout its business career, but from information derived from the company's books.

Q. Then would the added value given to the land owned by the company by virtue of the construction of the system and the ability to supply it with water alter your statement any?

Mr. WORKS: Complainant objects to the question on the ground that it is immaterial, irrelevant, and incompetent. If you will let it be understood that our objection is made to all this evidence relating to the sale of lands and the income to be derived from
295 them, it will save us from making the objection, in whatever form it may come.

Mr. GIBSON: All right; it will be so understood.

A. Not from results as developed up to the present time.

Q. Then some value has been added to the lands by virtue of the construction of the system and the ability of the company to supply them with water? I mean to its own lands.

A. The value of all the land under the Sweetwater system lands owned by the company and those owned by others has been increased by reason of the construction of the system.

Q. Mr. Schuyler says in his report, from which you testified the other day, that the construction of the works has already added a value of a million and a half to the principal tract of 5,000 acres, which has been supplied with a complete system of water pipes, and another million to the value of town property in National City and lands in its immediate vicinity. You understand it in the same way, do you?

A. I understand that that was the statement made by Mr.

Schuyler, the company's engineer, during the season of inflated land values in this section of the country, the results from which have failed to materialize.

Q. Does the company sell its land any lower now with water than they did during the period you refer to?

A. I understand for about one-half in some cases and with very few sales now, when sales were numerous then and were expected to continue at the then price.

Q. You have testified that the lands there are worth with water from \$250 to \$350?

A. Yes, sir.

296 Q. Do they not ask even in excess of the latter figure for land with water now? Do they not ask in some cases as high as \$500?

A. Perhaps for a few tracts of land in the vicinity of National City they may be asking \$500 an acre for land, but in the case of some of the Chula Vista land lands are offered for \$250 an acre similarly located to lands that were sold, as I am informed, during the first of the land sales after water system was completed for \$400 and perhaps \$500 per acre.

Q. They are still asking those figures for certain lands favorably located?

A. They have no land that they are asking those figures for.

Q. Yet they have some land—

A. I would have to refer to the company's real-estate agent for exact prices. They have practically no land that they are selling or offering for sale for prices as high as you quote, the majority being considerably reduced, and no sales even at the reduced price.

Q. The majority of the lands are held at \$250 to \$350 per acre, with water, are they not?

A. The company is asking from \$250 to \$350 for a few of its choicest lands, with water, in the Chula Vista tract, and is having no sales at that price.

Q. Well, I suppose the value of lands is what they are willing to sell them at?

A. No, sir; the value of lands is what they will bring.

Q. Are not land sales quiet all through that section and all through this section?

A. They are, emphatically.

Q. Still the company ought to be the best judges of what
297 they are worth, if they are not willing to sell them for anything less?

A. Not necessarily.

Q. As a matter of fact, they are not selling them for anything less?

A. No; neither are others selling who are offering for a less price.

Q. Now, what do you take into consideration, and you will please state it in detail, when you say that the company cannot furnish what you call a water right for less than \$100 per acre?

A. The cost of the water system as a whole and the quantity of

water the system is capable of delivering and the use as developed in the past, estimating that the use be increased on acreage and domestic in the ratio that it is now being supplied—that is, a present consumption of water being supplied to about 4,000 acres of land and a population of 2,000 to 2,500, with a maximum capacity of the system to supply 6,000 acres with, say, about three to four thousand population.

Q. Now, those are the three principal elements that you take into consideration or upon which you base your statement that the company cannot sell a water right for less than \$100 an acre at a profit?

A. There must be included in the above cost, of course, maintenance, operation, and depreciation of plant.

Q. Now, in the cost of the water system as a whole, what do you include?

A. The cost of the reservoir and dam site, including, of course, the lands they cover; the rights of way for pipe line, the necessary expenses for acquiring these lands, and the cost of constructing the dam and pipe lines.

298 Q. That is all, then, that should be included in estimating the cost or value of the system as a whole?

A. Those are the main facts that enter into the cost, as I recall them.

Q. Well, what other costs are there or expenses, if any?

A. There are, of course, a great number of various incidental expenses from the beginning of investigation as to the quantity of water that could be obtained.

Q. Well, that would all come in under the head of labor, would it not—skilled and unskilled—and the cost of construction of the dam and reservoir and the laying of the pipe?

A. Yes, sir; I should suppose that all those different costs would be included under the general heads already given.

Q. Now, what is the difference between expense of maintenance and operation? Are they not one and the same thing?

A. They might either be included or both be included under either head.

Q. Haven't you heretofore spoken of them under the same head—under the head of maintenance?

A. I am uncertain how they are kept on our books, whether the expense of the management of the water system is charged to maintenance or general operating expenses. There is, of course, a difference between the salary of the book-keeper and the cost of putting a band on to a leak; one might be classed as operation entirely while the other is as directly maintenance of pipe system.

Q. So far as the cost of maintenance is concerned, if the book-keeper records the expenditure made by the mechanic who puts on the band on the pipe the effect is just the same, is it not?

299 A. It might be all included under one general head.

Q. What is included in the expense of maintenance and operation as you understand it and as you understand it ought to be?

A. I understand the salaries of the officials connected with the water system throughout, the labor throughout, and material as may be required.

Q. Well, would the expense of the officers of the system include the expenses of the officers at Boston who attend to the general business of the company?

A. So much of their salaries should be charged to maintenance of pipe line as their time is spent directly in looking after the interests of the water department, and, having several different branches of business here, their expense should be divided in proportion to the amount of their time taken by the different interests, land, water, and railroad.

Q. That is, it ought to be apportioned between those three departments?

A. To get at the exact cost of maintenance of the system it should be so apportioned.

Q. And would you say the same with regard to the salaries of the officers at the local office in National City?

A. I should; yes, sir.

Q. Including the engineer?

A. Including the engineer. Of course, in companies having various interests it is a physical impossibility and a financial impossibility to distribute accurately the exact time that each of these local officials are employed in the various branches of the company's business. So far as the engineer is concerned, I think, however, that is very closely approximated as a whole, although
300 some of the engineer's services are given to the land department and some to the railroad department, yet in turn the railroad department gives the engineer transportation and also gives the employees in the water department under the engineer transportation under conditions that seem to the engineer a fairly just return.

Q. You are the engineer referred to?

A. I am the engineer of the company; and in the land department some of the engineer's time is required, but in return the past year the engineer's team has been the property of the land department, although used almost exclusively for the year, and even before, by the engineer for the water department. It is the intention of the water department to charge itself with only the exact charges that are proper.

Q. That is the intention in the future?

A. In the past, so far as the engineer is concerned, and in the future as well.

Q. Now, if the plant—that, is including the dam and pipe line No. 1—could be duplicated for one third less than its cost as you have given it to us, would not that reduce the sum of \$100 in proportion?

A. No; because the sum of \$100 was based on the price at which the company could not afford to deliver water from its water system. The cost of a water system to be constructed in the future having

the benefits of a very different price would of course entail new deductions throughout.

Q. Do you mean to be understood as saying that this \$100 rate is based upon the present value of the system or the original cost of the system referred to?

301 A. There is no future cost of construction used as a factor in any of the company's computations.

Q. Well, just answer that question. You do not answer it fully.

A. All values of the company and all of its estimates are based on the original cost of the system.

Q. And not on the present value of the system?

A. Not on the present value of the system or what it would cost to construct a similar water system at the present time.

The further hearing is adjourned until 1.30 p. m.

302

Afternoon session.

H. N. SAVAGE recalled.

By Mr. GIBSON:

Q. I understood you to say, Mr. Savage, in your direct examination that the company would lose money if it could and was supplying all lands that the system will supply at the rate of \$3.50 per acre per annum for 350,000 — per year?

A. It would, sir.

Q. That is at the rate, I believe, of one inch to each 7 acres?

A. Approximately.

Q. Now, you stated on what basis you would compute the water rate to be charged. Would you on the same basis compute the annual rate to be charged?

A. I would with the addition to the expense of a reasonable interest on the capital invested.

Q. Now, will you give us in detail in figures the way that you arrive at the amount that should be charged for a water right and the amount that should be charged for an annual rate for irrigation, and also the amount that should be charged for water supplied for domestic uses? You may take your time and figure it out.

A. We have prepared a statement covering that ground.

Mr. WORKS: Both on the basis of the entire receipts of the company from land and everything else, and separately without reference to those receipts; it is prepared by Mr. Savage and Mr. Boal together. We intend to introduce it.

Mr. GIBSON: If they are going in when Mr. Boal comes on, we would rather have them.

Mr. WORKS: It would be really going over the same ground
303 again, and we will produce it then, and we will show the total amount received. It has been gone over very carefully.

Q. You also promised to furnish a statement showing the proportionate part of the cost of the pipe system and of the reservoir and

dam site that should be charged to National City. Have you prepared such a statement?

Mr. WORKS: That statement is already in, as to their idea.

WITNESS: That was in Complainant's Exhibit No.—

Mr. WORKS: No. 2, I think. It was merely an estimate of what they thought National City ought to bear.

WITNESS: The statement referred to does not include any portion of the dam, reservoir, or the main pipe lines delivering water from the reservoir to the National City limits.

Q. Have you made any such statement?

A. We have not made a statement showing exactly what proportion of the dam and reservoir and main pipe lines would be proportionately chargeable to National City. It would be difficult to get at that exact ratio at the present time because of the unknown applications for water, whether the major part of the balance of the water possible to be supplied would be applied for in National City or in Chula Vista.

Q. Well, we would want it not at the present time, but as it existed in February, 1895. You can prepare such a statement—that is, an approximate statement—from the company's standpoint?

A. I can prepare a statement showing the cost of the dam, reservoir, and main pipe line as constructed and in existence at any specified time, and also showing the proportion of water being delivered approximately to lands within the city and to lands without.

Q. How long will it take you to prepare it?

304 A. I can bring it in tomorrow morning, probably.

Q. You may state, Mr. Savage, the total number of acres under irrigation in Chula Vista.

A. At the present date—

Q. I suppose it was the same in February last?

A. No; there has been some change. At the present date, October 8th, there was under irrigation in Chula Vista a total of 2,100 acres, of which the company now own 1,070 acres, and the balance, 1,030 acres, being owned by others.

Q. How was it in that regard in February last—prior to the 20th of February last?

A. The company have put under irrigation of their own land 335 acres of the above 1,070 acres since February 20th, 1895.

Mr. GIBSON: That is all for the present.

Redirect examination.

By Mr. WORKS:

Q. Can you give any estimate, Mr. Savage, of the quantity of land that has been attempted to be reached by the company above the 140-foot contour line?

A. (Referring to topographical map.) I should say between 100 and 125 acres.

Q. I understood you to say that about one-half of the land at-

tempted to be supplied was in National City. Did you mean one-half of the lands above that contour line?

A. Yes, sir; on going over the plat I am inclined to think about one-third of that acreage is in National City.

Q. That would be how many acres?

A. Say thirty-five.

Q. I understand you to say that there is more land under
305 the 140-foot contour line than the company can supply from its system?

A. There is; yes, sir.

Q. Then how does the question as to the supplying of these higher lands affect the question as to the earning capacity of the plant?

A. It would cost more to maintain a pipe system to supply high lands than it would low lands because of the necessary increase in size of the mains to deliver the same quantity of water at higher level.

Q. Then, as a matter of fact, it would be cheaper and less expensive to the whole body of consumers if the supply of water is confined to the lands below that contour line?

A. It would be very much cheaper.

Q. Is there any difference, Mr. Savage, in any way detrimental to the company that you can point out between the present ordinance No. 118 and former ordinances under which the company has supplied water to National City?

A. In your question do you refer to rates or regulations, or both?

Q. Either one or both.

A. There is a material change in the rates chargeable for irrigating acre property which had not required the right to use water.

Mr. GIBSON: Just state the numbers of the ordinances you are comparing, please.

WITNESS: Between ordinance No. 112 and ordinance No. 118, which latter ordinance is now in force. There is also a change in the rates for irrigating lots using water for different purposes. There is also a material change in the methods under which meters may be required. There is also a change in meter rates.

306 There is also a change in the rate for water furnished the city. I think this covers the major portion of the changes.

Q. Did you point out what those differences were, Mr. Savage?

A. I did not.

Q. I wish you would, briefly.

A. Ordinance No. 112 provides that a rate of \$7 per annum may be charged to land to which the easement and flow of water for irrigation has not been or shall not be annexed by the consent or voluntary act of the water company. Ordinance No. 112 provided for a scaled rate for the use of water on lots, reducing from \$3.50 per lot to \$1.00 per lot. Ordinance No. 118 provides for an arbitrary rate for the use of water on lots, depending on the use to which the individual lots may be put.

Q. What is that arbitrary rate?

A. \$3.50 for water furnished a single lot which contains a dwelling

or building used for business purposes; for irrigating gardens and nursery, \$2.00 for each lot; for irrigating orchards and small fruits, \$1.50 for each lot, these rates being per annum, with meter rates of 40 cents per thousand gallons, optional with the \$3.50 rate; meter rates of 20 cents per thousand gallons, optional with the \$2 rate, and meter rates of 10 cents per thousand gallons, optional with the \$1.50 rate. Under ordinance No. 112 the company placed meters at their own expense—

Mr. GIBSON: Is this explanatory of the ordinances?

Mr. WORKS: Yes, sir.

Mr. GIBSON: Are you going to introduce these ordinances?

Mr. WORKS: They have been introduced, I understand.

Mr. GIBSON: All right, if they are to go in, so we can have something to compare them with.

307 WITNESS: Under ordinance No. 112 the company placed meters at their own expense and maintained them at their own expense. When meters were requested by consumers the company placed them at the expense of the consumer, and charged a rate of thirty-five cents per month for the use, cleaning, and repair of said meters. Ordinance No. 118 provides that it shall be the duty of any person, company, or corporation furnishing water, on a written demand by the consumer, to *apply* a meter at the cost of the company. This last provision is used by water-takers to compel the company to put in a number of meters on a single service, where water is required for different uses, as provided in said ordinance No. 118, which provides that water may be had for the use of one lot at 40 cents per thousand gallons, for use on the adjoining lot at 20 cents per thousand gallons, and for use on a third adjoining lot at 10 cents per thousand gallons, a special reduction in the case of water being taken for mechanical purposes, including water for water troughs. There was a change in the method of charging for water furnished to dwellings, bath-tubs, and water-closets from a rate based on number of rooms in house to number of people or persons, and from a \$4 rate for bath-tubs to a 30-cent rate, and from the \$6 rate for water-closets to a 40-cent rate per month.

Q. Were the rates increased as between ordinance No. 112 and ordinance No. 118 in any particular? If so, what?

A. They were not increased in any particular. The ordinance No. 112 provided for a rate of \$3.50 per annum per acre, based on a use not exceeding 350,000 gallons per acre, while ordinance No. 118 provides for a rate of \$4 per acre per annum, without establishing the quantity of water which the company would be required to supply at that price.

308 Q. You have been questioned with reference to the manner of furnishing the water by the company, with reference to whether the water is furnished for the whole year or for only the irrigation season, and you have answered that the water was furnished for irrigation purposes during the irrigation season. Is there any less water furnished under your contract or under your rule on that account?

A. There is not.

Q. If I understand you, the consumer simply has the right to a certain quantity of water, and he may take it in constant flow or at such times as he needs it, subject to the rules of the company as to the times of furnishing the water.

A. He may; but those rules are so drawn that he has practically unlimited option over the time in which he may take his entire supply.

Q. But in any event, no matter when the water is taken by him, he is entitled to the full per acre foot per acre that his contract calls for?

A. He is; and, in explanation, the company originally specified 350,000 gallons of water as the quantity supplied for irrigating acre property, and on that quantity based their rate. Subsequently in establishing a quantity of water as a basis for sale in water right they named one-acre foot, approximately 326,000 gallons, and in harmonizing rights the company decided water-takers having a right to 326,000 gallons to take up to 350,000 gallons at the same rates as were charged for 326,000 gallons.

Q. What is the advantage to the consumer in this privilege of taking water during the irrigation season as against the right to take it per miners' inch constant flow and take it as it flows?

309 A. It necessitates the company maintaining a storage reservoir of sufficient capacity to hold over and store the quantity of water that a miners' inch would afford for the balance of the year, and also it necessitates the company having main pipes of an increased size so as to enable it to deliver his entire supply within the irrigation season.

Q. And if the consumer were required to take his water by constant flow, he would be compelled in that event to provide his own storage reservoir, wouldn't he, in order to store his water for the time he needs to use it?

A. He would be compelled to or else purchase a much larger quantity of water.

Q. What has been the experience of the company as to whether consumers do in fact take and consume up to the full limit of their contracts for water?

A. The company have not had meters set throughout their system on services supplying irrigated lands a sufficient time to determine the exact quantity of water taken by consumers, but from measurements taken and from very careful estimates made by the witness as to the quantity of water in the reservoir, deducting the evaporation, the amount of water lost from the reservoir and delivered to the water-takers has been estimated approximately and with reasonable accuracy. A portion of this water so taken, however, has been allowed to go to waste by the consumer by turning on more water onto his tract than he could take care of without a portion of it going to waste by running off his premises.

Q. Well, from those estimates made, what are you able to say as to whether the consumers do in fact consume the entire quantity of water to which they are entitled?

310 A. The company have delivered to consumers an amount of water approximately fifty per cent. increase over the allowance of 350,000 gallons per acre per annum. This quantity includes the quantity supplied through the same system for domestic purposes, which has been so small an amount as to not materially affect the computations.

Q. Is there any difference in the expense to the company in the way of maintaining and operating its plant in case of water supplied for domestic purposes as compared with that furnished for irrigation?

A. There is a difference.

Q. State in what respect.

A. Water furnished for irrigation might properly be supplied at intervals reasonably a portion only of each thirty to forty-five days, as is required by the irrigator, while in supplying water for domestic purposes, through the same system, it is necessary to maintain substantially a constant pressure throughout the system.

Q. Has the number of connections and service pipes necessary, as compared with the amount of water actually furnished, anything to do with the additional expense of the company?

A. The greater the quantity of water supplied the greater the difficulty to the company in maintaining the pressure throughout for domestic purposes.

Q. Does the fact that you are required to furnish service pipes at each of the city lots for the furnishing of small quantities of water for domestic purposes have anything to do with the additional expense to the company as compared with the furnishing of large quantities through one pipe?

A. It materially increases the company's expense and the 311 cost of the system to so distribute the water.

Q. You were asked particularly, on cross-examination, with reference to the quantity of pipe that was taken up from National City on account of the pipe being defective. Did you, in making the estimate of the cost of the pipe within National City, include that pipe that was put down and taken up?

A. No, sir; that pipe referred to was taken up before the statement was prepared showing the cost of the pipe line in the city. The cost of those pipes was excluded and is not contained in that statement.

Q. Then, if I understand, the cost which you have estimated is upon the basis of the entire pipe line being put down as it exists today of good and sufficient pipe and without any reference to any expense of the company in putting down and taking up defective pipe previously?

A. It does, sir, as it existed at that time that that statement was made.

Q. Have you estimated and can you state what the actual cost to the company was of taking up and replacing that defective pipe known as the spiral pipe?

A. I have ascertained the original cost to the company of that

spiral pipe, including its transportation and laying, complete in the system.

Q. You may state the amount.

A. The company originally purchased and laid 37,869 feet of spiral pipe, varying from 24 inches in diameter to 6 inches in diameter, at a total cost of, as near as can be ascertained, which is approximately correct, \$57,666.53.

Q. Do you know now what the cost of that pipe was as compared with the pipe by which it was replaced?

A. A portion only of that pipe has been replaced and the cost of the replacement has been less than the original cost of this pipe.

Q. Could you tell how much less or approximate it?

A. Approximately 33½ per cent. less.

Q. It appears from the report or paper prepared by Mr. Schuyler, the constructing engineer of the dam and pipe line referred to in your cross-examination, that the system would be able to irrigate 20,000 acres of land. When, if you know, was it demonstrated to the company that the system would not be able to supply that quantity of land?

A. It was demonstrated by the dry seasons of 1893 and '94, and reported by the witness to the company in the latter part of 1894.

Q. When did the company first establish the rate of \$3.50 per acre rental for its lands?

A. I am informed that it established that rate based on a use of 350,000 gallons per acre, one cent per thousand gallons, at the time it first begun to sell water in the beginning of 1888.

Q. What time was that with reference to the time their constructing engineer had reported that the system would supply 20,000 acres of land?

A. That was presumably at substantially the same time as the report referred to containing this estimate of the constructing engineer was prepared, during the early part of the season of 1888.

Q. When, if you know, was that paper made public?

A. That paper was read October 17th, 1888.

Q. Was that report in the hands of the company, do you know?

313 A. That report was in the hands of the company directly after its being read, and I have reason to believe the information contained in that report was public property with the—

Mr. GIBSON: Just wait a moment, Mr. Witness. Of course, we are admitting evidence here very liberally, but on this point we want the witness to confine himself to what he knows, not as to what he believes. We object to any evidence based on his belief.

Q. When did you first see this report, Mr. Savage?

WITNESS: Was my previous answer stricken out?

Mr. WORKS: No; we will leave it as it is.

A. I first saw that report directly after it was published in the transactions of the American Society,

Q. Did you find the report on file with the papers of the company when you became its engineer?

A. A copy of the report was given me the day I entered the company's employ, January 10th, 1891.

Q. Given you by whom?

A. Given me by the company's president's secretary.

Q. Who do you refer to?

A. Mr. Charles D. Lanning, who is now the company's receiver.

Q. Has the report been kept on file with the engineer of the company since that time?

A. It has been kept on file.

Q. You have referred to Mr. Schuyler as the constructing engineer. Did he continue as the engineer in charge after the construction was completed?

A. He was employed as consulting engineer at the time the witness assumed charge of the system as engineer in charge, January, 1891.

314 Q. Who preceded you, if any one, besides Mr. Schuyler as engineer in charge?

A. There was no engineer intervening.

Q. Between you and Mr. Schuyler, do you mean?

A. Between Mr. Schuyler and myself.

Q. Then was he the engineer of the company from the time he had charge of the plant up to the time you became the engineer of the company?

A. He was.

Q. Are you sure, Mr. Savage, that the company in fixing its rate at \$3.50 per acre originally limited the amount to be supplied at 350,000 gallons per acre?

Mr. GIBSON: Objected to on the ground that the witness has shown that he does not know of his own knowledge on what basis the company fixed its rates.

Mr. WORKS: That is just what I want to show, Judge, that he don't know.

A. My knowledge of the basis is limited to the company's actions at the time I entered its employ and since.

Q. When you first became the engineer of the company was there any estimate made with reference to that matter as to the amount that could be supplied by the company and the charge per acre that was necessary to return the proper revenue to carry on the affairs of the company?

A. There was not.

Q. If, as a matter of fact, the rate of \$3.50 per acre was fixed upon the basis of the company being able to supply 20,000 acres of land, and that was a reasonable rate to be charged upon that basis, what would be a reasonable charge if, as a matter of fact, the company was only able to supply 6,000?

315 A. If the basis taken originally was correct and the rate established thereupon was correct, the necessary rate must, of

course, be increased in substantially a proportionate ratio with the decrease in the supplying capacity of the reservoir.

Q. Could you tell us about what that proportion would be of increase per acre?

Mr. GIBSON: Objected to on the ground that the testimony and evidence already in does not support the hypothesis in this, that it does not show that the company based its rate of \$3.50 per acre upon the capacity of the reservoir to supply 20,000 acres, and is, therefore, incompetent, irrelevant, and immaterial.

A. That would require a rate of \$11.66 $\frac{2}{3}$.

Mr. GIBSON: That is per acre, I suppose?

WITNESS: Yes, sir.

Q. What has been added to the plant since the paper of Mr. Schuyler of 1888 was prepared, in general terms?

A. In general terms, there has been added at the present time the repairs made necessary—

Mr. GIBSON: Wait a moment. We object to any additions for repairs made after the 20th day of February last. We object to the witness stating anything with respect to repairs or additions made after the 20th day of February last on the ground that it is incompetent, irrelevant, and immaterial.

A. (Continuing:)—at the dam by the big flood, and a second independent main supply pipe from the reservoir to National City, a distance of five and two-thirds miles, a 24-inch steel pipe.

Mr. GIBSON: That is pipe line No. 2, is it?

WITNESS: Yes, sir; known as pipe line No. 2 in previous testimony. There has also been added a 13-inch-diameter steel
316 pipe line extending from National avenue or that immediate vicinity east a distance of a little over two miles, and from that two laterals, one 8 inches in diameter, running south about 1,500 feet, and a connection from the eastern terminus of the said 13-inch steel line, running north one-half mile and connecting with the 6-inch pipe line previously laid on Eighth street, National City. There has been laid a 12-inch pipe line from a point on National avenue near Sixth street northerly to the city limits, thence easterly along the north boundary line of the city and extending into what is known as Horton's purchase of Ex-Mission, with two right-angle laterals, one running west, 6 inches in diameter, and one running east, 8 inches in diameter. There has also been added that lateral known as the Kimball Extension line, in quarter section No. 5.

Q. Can you state approximately what those additions have cost the company?

A. I could not without going over the company's books and ascertaining a portion of them.

Q. I wish you would ascertain and be able to state at the next adjournment what these additions have cost the company, how much of the expense has been incurred in adding to the system within National City, and how much of the expense has accrued since February 20th, 1895.

A. I would like to inquire if you want included in that that portion of pipe line No. 2 that was laid and the amount of money the company had advanced up to that time in the construction of pipe line No. 2—up to February 20th?

Q. Yes. I want you to separate them, Mr. Savage, making that your dividing line. Get the expense up to that time and
317 then the amount of expenditure subsequently, and I shall be glad if you will state how much had been expended on pipe line No. 2 at the time this ordinance was enacted, February 20th, 1895.

A. A large proportion of pipe line No. 2 had been received and we had paid a twenty-five or fifty per cent. estimate on its cost up to that time, the pipes being stored in the company's yard and delivered along the pipe trench.

Q. What amount of the pipe had actually been distributed along the trench at the time this ordinance was passed, February 20th?

A. I will be unable to say until I look over the shipping receipts, from which I can determine very approximately.

Mr. WORKS: I wish you would get that information for us, Mr. Savage, and be able to state it more accurately.

Q. Something has been said about your being unable to furnish water demanded in National City. Will you state to what amount of lands water has been demanded in National City that you have been unable to supply on account of the elevation of the land?

A. We constantly receive applications for water to supply lands above the reach of the system throughout the entire system, and no record is kept of the applications, as most of them are oral. At the present time the company are receiving applications and selling water rights for water to supply lands higher than can be reached by the system, the applicants receiving his water supply, however, at such elevation as the company can safely contract to deliver it to, he relieving the company of any obligations to deliver it at elevations higher than specified in the contract.

Q. Could you state even approximately for what number of acres water has been actually demanded that has been refused on that ground within National City?

318 A. I would estimate roughly, 100 acres.

Q. Has any distinction been made between lands inside National City and lands outside, in refusing to deliver water to higher lands?

A. There has not, to my knowledge.

Q. Has the company or not learned by experience that it is unsafe for it to obligate itself to furnish water at an elevation that was supposed to be under its system at the time it commenced to deliver water?

Mr. GIBSON: Objected to as incompetent, irrelevant, and immaterial.

A. It has so learned at very expensive cost.

Q. Do you know at what elevation it was supposed water could be furnished safely and economically in the beginning?

Mr. GIBSON: That is objected to as incompetent, irrelevant, and immaterial, and it asks for a supposition of the witness.

A. The contour line, 190 feet elevation, as shown on topographical map, is made much heavier than any other contour line, and was considered originally by the company a safe elevation for it to contract to supply water to.

Q. When, do you know, was the first map prepared showing that fact by the heavier contour line?

A. The maps were made in 1888.

Q. You have testified on cross-examination that the water from the dam can be taken out at the 25-foot contour line through pipe line No. 2, as I remember it. Is there any other means by which you can take out the water at a lower level; and, if so, what?

A. As originally constructed, there were three outlets placed
319 through the base of the dam; one of them, 36 inches in diameter, used as a main outlet, and there were two others, one 18 and the other 14 inches in diameter. These two smaller outlets may be connected with pipe line No. 2, enabling it to take water at the lower levels than its present or main intake. This was part of the original design and influenced the location and establishment of the hydraulic grade line for pipe line No. 2.

Q. You were asked to furnish a statement of the amount of water used for railroad and mechanical purposes. Can you furnish that statement now?

A. I made a computation of that quantity of water.

Q. I wish you would state the amounts furnished and for what purposes.

A. A statement has been prepared by me showing the number of gallons of water delivered to certain water-takers for mechanical and manufacturing purposes, and to other takers, where meters are not set, which are using water for similar purposes, the quantity has been obtained from the rates they are paying based on the ordinance rate giving the rate for such uses. There was delivered to the National City stamp mill between January 1st, 1895, and July 1st, 1895, 232,157 gallons; the National City and Otay Railway Co. paid a rate equal to a use of 1,815,000 gallons; the California Southern Railway Company paid a rate equivalent to a use of 7,500,000; George W. De Ford paid a rate equivalent to a use of 135,000 gallons; the National City Record paid a rate equivalent to a use of 375,000 gallons; the Coronado Railway Company received through a meter measured 30,587; two sewing-machine motors, one owned by the company's general manager, John E. Boal, paid a rate equivalent
320 to a use of 9,375 gallons; Mrs. George W. De Ford paid for water for a similar motor a rate equivalent to a use of 9,375 gallons.

Q. You were also asked to furnish a statement of the number of acres irrigated by years. Can you now furnish that statement?

A. The following quantities were compiled by the witness for his

information, and while they are very approximately correct are not perfectly accurate, as they were taken from the company's rate book entirely :

March 10th, 1891, there was under irrigation 1,310 acres.

November 1st, 1891, there was under irrigation 2,086 acres, inclusive of city lots.

November 1st, 1892, there was under irrigation 2,783 acres, inclusive of city lots.

November 1st, 1893, there was under irrigation 3,343 acres, inclusive of city lots.

November 1st, 1894, there was substantially 4,000 acres under irrigation, inclusive of city lots.

Q. You were asked to furnish a statement of the number of services within National City and at what times they were put in. Will you please furnish such statement now ?

A. The number of service connections on the entire system are as follows: No distribution has been made of them regarding their location within or outside the limits of National City. The first service was put in February 15th, 1888, and during the season of 1888, up to December 31st, there were put in 334 services.

In 1889 there were put in 126 services.

In 1890 there were put in 112 services.

In 1891 there were put in 126 services.

In 1892 there were put in 67 services.

In 1893 there were put in 86 services.

321 In 1894 there were put in 48 services.

In 1895, up to date, October 8th, inclusive, there were put in 60 services, making a total of 959 services.

Mr. GIBSON: We have no objection to that statement prior to February 20th. He has there up to October 8th, 1895. We object to that part of the statement subsequent to February 20th, 1895, on the ground that it is irrelevant, incompetent, and immaterial.

Q. With reference to what has been said by you in the cross-examination as to the sufficiency or insufficiency of the wasteway of the dam to take care of the water during the flood of 1895, I wish you would explain more fully what the nature of that storm was and whether such a rainfall and flood could reasonably be provided for by a wasteway.

A. The flood of January, 1895, was much greater than any information of any and every kind available would lead the engineer to provide for. In repairing the damage done by the flood and providing for future flood the total wasteway and blow-offs as now constructed have a total capacity of just about one-third of the maximum flood, it being the intention to impound a portion of the flood between the lowest elevation of the wasteways and the top of the dam, provision being made, however, for a greater flood to go over the top of the dam, as did the last one, with provisions at the base of the dam to prevent damage by erosion. The parapet was increased in height a little at both ends, so as to prevent a future flood overflowing the dam and damaging and eroding the sides of

the canyon at either end of the dam, which were both largely damaged by the past flood.

Q. You have stated that the charge of a water right of \$50 was first established by the company in the fall of 1892. Was not water refused to applicants prior to that time unless a water right were paid? and in that connection I refer you particularly to the cases of Sharp, Shattuck, and Judge Wellborn.

A. Mr. Sharp was refused water which was subsequently granted under a special contract, which included an interest or an interest charge on an amount which might be taken as equivalent to a water right, although his contract was a limited one. Water was refused Judge Wellborn to be used on lands owned by him situated in Otay, adjoining the Chula Vista tract on the south near Fifth avenue.

Q. With reference to the quantity of water furnished to the town of Otay, is any part of that water furnished for irrigation purposes?

A. The larger part of it is used by the inhabitants of Otay for irrigating lots and the growing of small fruits, berries, shrubs, and so forth, around their houses.

Q. Have you any explanation you would like to make with reference to statements you made with regard to the storage capacity of the reservoir? If so, you may state.

A. The question of the amount of irrigation during the period when the water was drawn off from the Neale land through the tunnel having its outlet 25 feet above the lowest outlet of the reservoir and storing approximately 70 miners' inches of water—there was at that time maintained a temporary weir in that tunnel, which was in existence and being used when the witness entered the company's employ, which held the water at an elevation of 32 feet. There was also purchased from the flume company a quantity of water during the season of 1890. I know that fact from seeing the flume constructed to convey that water and from the company's books showing the amount of money paid for that water, although the water was delivered before I entered the company's employ.

323 paany's books showing the amount of money paid for that water, although the water was delivered before I entered the company's employ.

Mr. WORKS: That is all I want to ask Mr. Savage now. I want to get those figures we have called for, and I will recall him for that purpose.

Recross-examination by Mr. GIBSON:

Q. You said that there were about 125 acres of land that the company tried to reach above the 140-foot contour line, about one-third of which is in National City. Now, how much of that high land is company land and how much of that high land that belonged to the company was planted to orchard?

A. I will answer that for you tomorrow. I want to go to the company's maps. This map does not give the property-owners.

Ordinance No. 107 of the city of National City is introduced in evidence and marked Special Examiner's Exhibit Defendant "B."

(Printed copy of ordinance No. 112 of the city of National City is to be furnished and filed as an exhibit in the case hereafter.)

Q. You say that the consumer may take all the water he is entitled to in his own time. That is what you said in substance. For instance, if he is entitled to receive one acre foot of water for each acre for ten acres, he can take that water when he pleases or in any quantity when he pleases, not exceeding the one acre foot per acre per annum?

A. Practically no restriction has been placed by the company on the time in which the consumer may take his water. The rules provide that the company may require a full month's supply to be taken within such time as it may specify, not less than ten days.

324 Q. You are now reading from the rules, are you?

A. Yes, sir; under which the company has been operating. It also limits the quantity to be delivered in one month to not more than one-fourth the amount contracted for, but with the exception of very few cases there has been no control whatever attempted by the company over the time in which the consumer shall take his entire quantity.

Q. That is only in seasons when water was plentiful and the company has sufficient to furnish all the water demanded?

A. That is only in seasons when the water was scarce, where the company has attempted to exercise control in a very few cases where the company has supplied lands varying a great many feet in elevation.

Q. But the rules you have referred to are rules the company has enforced whenever the company deems it necessary, for its protection?

A. The rules referred to are rules that the company enforces whenever it deems it best for the water-takers as a whole.

Q. And sometimes considers the company's own interests?

A. The company has never considered its own interests to the detriment of other water-takers. It has considered the interests of the other takers to the detriment of its own. Sometimes it has been only to permit the water-taker to use a good deal more water than necessary, to the injury of his land in some cases, where he has insisted upon it.

Q. When water is scarce, as you have stated it sometimes is, then it becomes necessary for the company to enforce these rules, does it not?

325 A. In times of scarce supply it would become necessary, and the rules were designed for that purpose—to give the best service to the water-takers as a whole.

Q. And to distribute the water to all who may be entitled to it as equably as may be, and also to conserve the quantity of water as much as possible, in order to serve all who may need it and demand it throughout the season?

A. There has been no attempt to conserve water supply; simple restrictions have been attempted in individual cases, so as to best

deliver the water required, as referred to in the case of very high lands and very low lands, which take their supply from a single pipe line; alternate weeks have been designated for the delivery of water to all the high lands in one week and all the low lands in another week.

Q. There is that practical limitation upon the ability of either class of lands to receive all the water it might want within a given period, say within a fortnight?

A. The limitation in no way affects the total quantity or the delivery of the total quantity within periods extending outside of the irrigation season. The total quantity may be delivered, under any rules we have had, in very much less than the irrigation season, if desired.

Q. Supposing a man required an acre foot of water and should not, owing to the condition of his ground and the nature of his crops, require it until the end of the irrigating season, after the supply for that season had been exhausted, or so nearly exhausted that you could not furnish him his supply, in that case would you turn on, or try to turn on, his acre foot over ten or one hundred acres, as the case might be, and cover it within a day or a week?

326 A. There are no service pipes of sufficient size to deliver any such quantity of water in any such restricted time. The service pipes are put in substantially in accordance with the size requested by the consumer, and are of such size that it would be impossible for him to take his entire supply for the season in a very few days, owing to the cost to him, but water is supplied to all consumers throughout the entire year. They may take their supply any time they like, irrigation season or midwinter, and there have been no restrictions as to that supply.

Q. That is to say, you endeavor to give them all they are entitled to if they demand it or require it?

A. We always have given them—

Q. But yet, where it is necessary in times of low water to divide the distribution or delivery of it into sections, or to supply different sections at different times, in order to reach all the consumers and give each his *pro rata* part, then the consumer cannot get his water at any time he may need it; he can only get it in accordance with the rule of the company adopted for the distribution of water at such times. Isn't that the fact?

A. That rule does not prevent his taking his entire supply within a few weeks, but it limits his time of taking that supply to each alternate week. It does not limit the quantity he may have within the month; it simply limits his time of taking that quantity to every other week.

Q. Supposing he has his pipes so arranged that he can only receive a supply by receiving a constant flow every day for every week during the irrigation season, and he can only receive it on alternate weeks, it would reduce his supply one-half, wouldn't it?

327 A. It would, if he were so unwise as to put his pipes in of such small size, which is not the case. The only time water

supply has been limited is in the case of very high lands which it was impracticable for the company ever to attempt to supply, and those have got, with few exceptions, their entire quantity in the irrigation season, although, perhaps, not at the exact times they would like it.

Q. Where you shut off the supply in one section while supplying another, when you are giving the alternate service, how do you regulate the domestic supply to the section that is not receiving water for irrigation?

A. We do not shut off the supply; we simply send them a notice, and frequently at their own request their times are apportioned. The water-takers do their own policing.

Q. You have said here that consumers take all they are entitled to and take fifty per cent. more than the 350,000 gallons per acre for irrigation, which is the amount used for domestic supply. Please explain.

A. The witness has testified that the quantity of water delivered to consumers throughout the pipe system is approximately fifty per cent. more than their allowance of 350,000 gallons per acre per annum, and that in the above estimate no account is taken of the domestic supply, which is supplied through the same system, but which amount is so very small as to in no way materially affect the computations and quantities given.

Q. But yet they are charged for the amount used for domestic purposes separately?

A. They are, throughout the system.

Q. And in addition to the rates for irrigation?

328

A. And in addition to the rates for irrigation.

An adjournment is now taken until 9.30 o'clock tomorrow morning, Wednesday, October 9th, 1895.

329

WEDNESDAY, *October 9th*, 1895—9.30 a. m.

H. N. SAVAGE recalled.

Cross-examination continued.

By Mr. GIBSON:

Q. You say that additions have been made to the plant since Mr. Schuyler made his report. Can you state when those additions were made?

A. I cannot state the date at which all of them were made, as a portion of them were made after the report referred to was written and before I entered the company's employment.

Q. Were not the principal additions made to the plant the substitution of a better pipe for the spiral pipe and pipe No. 2?

A. They were not. Pipe line No. 2 has been the larger addition, but the pipe line referred to as the Keene Valley line, which is 6 inches in diameter and a mile and a half in length, and the 13-inch diameter cross-line on Sixteenth street, extending east from National avenue several thousand feet, with the right-angled laterals from it

and practically all of the lateral pipe lines throughout the Sweetwater valley, the major portion of the pipe line on Eighth street, National City, extending from National avenue east to the city limits, and the pipe lines in Ex-Mission were all laid since the completion of the system.

Q. You gave a detailed account of the pipe yesterday. What I want is the date when they were made. Just simply state about the dates when they were made.

A. The Keene Valley line and the Eighth Street, National City, line were laid in the latter part of 1888 or in 1889. The cross-line on Sixteenth street, National City, with its laterals, and the extension on National avenue north and east along the boundary line into Ex-Mission, was probably laid in 1890. The short
330 laterals, including the Kimball extension line, throughout the Sweetwater valley have been constructed at intervals from the completion of the system throughout the time up to 1894. Replacements have been made in Chula Vista of spiral pipe.

Q. Have you got that statement with regard to the 125 acres of high land?

A. No, sir. There was not sufficient time that I could devote to it. It will be brought in.

Q. You say that the 190-foot contour was at first considered the limit at which the dam would furnish water—the dam and reservoir?

A. Yes, sir; I am informed that that was the limit at which they expected to supply water, and services were taken out and water was supplied to lands extending up to substantially that elevation in different portions of the system.

Q. But is it not a fact that as the water recedes in the reservoir or reaches the lower contours that there is a corresponding falling off of pressure in the pipes?

A. It is a fact.

Q. Well, then, was it not known that the dam had but a limited capacity at these higher contours, and that it would be impracticable to keep the dam filled up to that contour during the whole of any one season?

A. It must have been known; but there was provision made at the time the dam was constructed for a pumping plant. There were two outlets, one 18 inches in diameter and one 14 inches in diameter, from the dam that terminated in a wheel pit, which was constructed in anticipation of developing power and pumping a portion of the
331 water to a higher elevation than could be depended on from a gravity supply from the reservoir.

Q. Those pipes were never put in, were they?

A. The pipes never have been put in; no, sir.

Q. And the water is supplied wholly on the gravity system from the reservoir?

A. It is; yes, sir; with the exception that individuals are taking their water at such elevations as it is possible to deliver it by gravity from the system, and with windmills raising it to higher elevations.

Q. You have already stated that. The company is not furnishing water excepting on the gravity system?

A. It is not.

Q. And has not since the inception of the enterprise?

A. It has not.

Q. You gave the number of service connections yesterday as aggregating 959 throughout the entire system?

A. Yes, sir.

Q. Now, can you segregate the domestic service connections from the irrigation service connections and state how many of each are inside of National City and how many are outside?

A. I can segregate the services within National City from those without, but in many cases water is taken for both domestic and irrigation uses through the same service.

Q. Both inside and outside of National City?

A. Both inside and outside of National City.

Q. Well, you can segregate them as far as the books of the company—the service book, or whatever you call it—contains the records of them, can you not?

A. I have a special book in which I keep a record of the exact location of every outlet from the company's mains, and can
332 from that determine the services within National City as segregated from those outside.

Q. Can you segregate these services in National City into two parts, those used for irrigating and those used for domestic purposes, and you might also add the services that are used for both, and also make the same division of the service connections outside of National City?

A. Where do you want the line drawn between domestic use and irrigation use with reference to city lots? In some cases as high as two blocks in city lots, substantially equivalent to five acres, are being supplied through individual services, which are also supplying water for domestic purposes.

Q. Regardless of the area supplied by the particular service for irrigation or the number of persons supplied by the services for domestic use, segregate them, say, into three parts: the service connections through which water is supplied for irrigation, the service connections through which water is supplied for domestic use, and the service connections through which water is supplied for both uses.

A. We have very few services which do not supply some irrigation—some water for irrigation purposes and sprinkling purposes.

Q. That would be in connection with city lots?

A. Yes, sir.

Q. Well, you might distinguish those, if you can, in your statement. Distinguish the lot connections where water is furnished for domestic and irrigating uses from those through which water is furnished to acreage property, as distinguished from lots, for both purposes or either purpose.

A. That will take time, but it will be prepared, and you shall have it.

333 Q. If the reservoir were capable of supplying water to irrigate 20,000 acres, would not the extra pipe system or distribution system necessary to supply the 20,000 acres, in addition to those already supplied by the present system, add materially to the cost of the system?

A. It would; yes, sir.

Q. Can you roughly estimate the probable cost? I don't expect you to get nearer than a rough approximation of it, but, taking into consideration the territory to be supplied in addition to that already supplied or capable of being supplied by the system as it at present exists, what would be the cost of the additional distributing system necessary to supply the 20,000 acres?

A. The estimate would have to be based on assumptions throughout, first, as to the location of the land to be supplied, regarding its distance from the reservoir, and then as to the elevation of that quantity of land. It might be so located that in furnishing a supply for irrigation and for domestic purposes combined, as is supplied through the present system, it would require an expenditure of \$750,000, and it might exceed that quantity considerably, or that amount might be decreased largely, depending on conditions.

Q. You say, Mr. Savage, also, in effect, that it was not discovered until the dry season of 1893-'94 the reservoir would not irrigate 20,000 acres of land. Now, as a matter of fact, was not the limit of the reservoir's capacity or duty known and established several years prior to that?

A. It was not known or established in any way whatever until the minimum year's yield of water from the water-shed or drainage basin was developed in the second dry season of 1894.

334 Q. When was the previous dry season?

A. 1891-'2.

Q. Was not the duty of the reservoir tested by actual use prior to 1893-'94?

A. The duty of the reservoir, taken in connection with the yield of the drainage basin, was not determined before.

Q. When did the company have to supply different sections at different times—during what years—and not the whole territory at once?

A. The water supply has been divided between water-takers on alternate weeks only in three cases since the witness has had charge of the system, and then only a very restricted number of acres—one at the eastern limits of the city, in what is known as Paradise valley; another to water-takers receiving their supply from Second avenue, Chula Vista, and the third on the Kimball extension. In each of these three cases the company has been petitioned by the water-takers for this division of time.

Q. During what years did that occur?

A. During 1894 in all three of these isolated localities, and in 1895 in the case of the Kimball extension alone, and that was brought about by differences ending in a lawsuit between two neighbors.

Q. Never mind the causes; just give us the ultimate fact: during

what years water was distributed to the different users in the sections you have named.

A. As just stated, in the year 1894 in each of these three cases, and in the year 1895 in the one case in the Kimball extension.

Q. That was all to reach high land, was it, or so that the pressure would reach it?

335 A. It was to give the high lands a full pressure.

Q. Was not that owing to the lack of pressure in the reservoir to reach the high lands without shutting off a part of the system?

A. No, sir. If the reservoir had been full, with water-takers on the low lands taking their full supply, there would not have been sufficient water to have delivered the necessary quantity to the high lands, owing to the small diameter of main pipes or lateral pipes.

Q. Do you mean to be understood as saying that the actual duty of the reservoir was never carefully figured, investigated, and decided prior to 1893-'4?

A. The actual duty of the reservoir was unquestionably figured by the company's engineers, and it was figured by the witness for his own information, but was always based on the records of the yield of the drainage basin. The witness testified at an inquiry of the trustees as to the probable duty based on use and yield up to that time, which included the dry season of 1891-'2, but did not include the very much drier season of 1893-'4.

Q. You stated, in effect, in your testimony heretofore, that there was no one season that would fill the reservoir prior to 1895—the flood of January, 1895.

A. I don't think I testified to that statement.

Q. If I understood you, you testified, in effect, to that.

A. I don't think I did.

Q. If you did, you can correct it now.

A. I don't think I have anything to correct of that nature.

Mr. GIBSON: I will finish the question.

Q. And that for practical safety it was necessary to carry over a certain percentage of the supply of one year to that of another. Now, if that were so, was it not a known fact that at no time would the reservoir irrigate 20,000 acres of land on the basis, say, of one inch to seven acres? I believe that is the highest duty of an inch that has been put yet.

336 A. I testified to the number of years, designating the years, since the completion of the Sweetwater dam in which the total run-off from the drainage basin was not sufficient to fill the reservoir. There were years in which the run-off from the drainage basin did and would more than fill the reservoir. I also testified that we retained a portion of the yield of a wet season, forty or fifty per cent. of the capacity of the reservoir, in anticipation of a dry season to follow. The years 1888, 1889, and 1890, the first three years after the dam was completed, did yield sufficient water to more than fill the reservoir each year, while the next three years did not yield

sufficient to fill it in any one year, and two of those years yielded but very little; the one dry year yielded less than $\frac{1}{12}$ th of a reservoir full.

Mr. GIBSON: That is all for the present.

337 JOHN E. BOAL recalled by complainant.

Direct examination cont.

By Mr. WORKS:

Q. Have you prepared statements showing the total receipts of the complainant from all sources, including receipts from sales of real estate and other profits derived therefrom, and the percentage of profits or losses of the company upon this basis, as requested?

A. I have prepared those statements, as requested.

Q. Have you them here?

A. I have them in my hand now.

Mr. WORKS: Complainant now offers in evidence the statements referred to and produced by the witness as Complainant's Exhibit No. 6.

(Afternoon session.)

Mr. GIBSON: To the proposed offer of said exhibit we object on the ground that it is incompetent, irrelevant, and immaterial.

Mr. WORKS: Then Exhibit 6 is withdrawn. That is as far as we are able to go now.

By Mr. GIBSON:

Q. What amount of revenue has been derived by the company from the sale of lands under and tributary to its water system since 1887? And give the amounts per acre at which the lands were sold.

Mr. WORKS: Complainant objects to the question on the ground that the evidence sought to be elicited is immaterial, irrelevant, and incompetent; on the further ground that the amounts realized by the company from sales of its lands are immaterial on the question as to fixing rates for water.

338 A. It is impossible for me to answer this question at this time. It would take a great deal of investigation to segregate the sales in the manner requested. I will have to ask for time in which to prepare the statement.

Mr. GIBSON: I will put the question in this form. What amount of revenue has been derived by the company from the sales of land under and tributary to its water system since the beginning of business? And give the amounts per acre at which the lands were sold.

Mr. WORKS: Objection repeated. It is objected to on the further ground that it calls for sales of real estate made before the construction of the water system of the complainant or the sale of any water by it.

Mr. GIBSON: We shall show it was all made in contemplation of getting water on it.

A. I have prepared a statement showing the sales made within National ranch and National City, and most of this, if not all, is within the territory tributary to our system. In National ranch, outside of National City, the sales amounted to \$234,942. In National City the sales amounted to \$342,957.48; a total of \$577,899.57. This is the gross amount received, and to obtain the net result it would be necessary to deduct the selling charges, which amount to from ten to twenty per cent. of the gross.

Q. Are there lands of the company sold within the time covered by your last answer outside of National City or National ranch that were tributary to the water system, that were contemplated to be covered and supplied by the water system?

Mr. WORKS: Same objection.

A. There are not, to my knowledge.

339 Q. Can you give the price per acre at which the land was so sold in National City and National ranch, outside of National City.

Mr. WORKS: Same objection.

A. In National City prices ranged from \$50 to \$1,000 per city lot and from \$200 to \$300 per acre for lands; outside of National City in the Chula Vista district prices ranged from \$150 per acre to \$500 per acre; in the Sweetwater Valley district from \$150 to \$300 per acre. There were also some improved tracts sold in Chula Vista at \$700 per acre, but this price was due to the improvements that we had placed there in the way of orchards.

Q. You mean this latter figure of \$700 per acre?

A. Yes, sir; the sales of raw land made at \$500 were afterwards rebated to \$350 per acre, the price having been temporarily advanced from \$400 to \$500 and afterwards reduced.

Q. The Sweetwater Valley district and Chula Vista that you refer to are within that part of the National ranch outside of National City?

Mr. WORKS: Same objection.

A. They are.

Mr. GIBSON: It can be understood that your objection applies to all this line of testimony tending to show the profits derived from land sales.

Mr. WORKS: Very well.

Q. What did those lands cost the company per acre—the bare lands?

A. I don't know in dollars and cents.

Q. Didn't they cost the company on an average about \$10 an acre?

A. I have no means of knowing.

Q. You have no personal knowledge of the original cost of the land to the company?

A. I have not.

340 Q. Can you give us the number of acres of land in National City owned by the company on the 20th of February last—

Mr. WORKS: It is understood that this is all objected to?

Mr. GIBSON: Certainly; it is all in the same line.

Q. —as distinguished from the number of town lots in National City?

A. Under Exhibit 4 we have prepared a statement showing that the company in 1887 owned 685 acres of land below the 140-foot contour line, and that we have sold of this 50 acres, leaving 635 acres as the land still owned by the company and owned in February last.

Q. How many lots? You have—total number of lots, exclusive of marsh, 6,691. How many did you have unsold in February last of that number?

A. The 6,691 lots referred to, exclusive of marsh, included 3,842 lots belonging to others, leaving us 2,849 lots owned in 1887. I have found that the company have sold, deeded, and donated a total of 783, leaving us 2,066 lots to which we hold title.

Q. How much land did the company own in National City on and prior to February 20th last above the 140-foot contour? Give it in acres and lots.

A. We owned no lots above the 140-foot contour; and as to acres, I would have to make an examination of the property book to determine that.

Mr. GIBSON: Make such an examination and state it in your testimony hereafter, if you please.

Q. Give the number of acres owned in National ranch outside of National City in February last.

A. In 1887 the company owned outside of National City, below the 140-foot contour line and exclusive of marsh lands, 4,514
341 acres, from which we have since sold 714 acres, leaving us 3,800 acres.

Q. How much between the 140-foot contour line and the 190-foot contour line did you have in February last?

A. I would have to prepare a statement showing that.

Q. The same as with regard to the National City land above that contour?

A. Yes, sir.

Mr. GIBSON: Please do so.

Q. Do the amounts you have given as having been derived from the sale of land in National City and National ranch, outside of the city, include interest on contracts for the sale of land where the land was sold on time, the purchase price of which was to be paid in installments?

A. I think not.

Q. Can you give that amount?

A. I could prepare a statement showing it.

Mr. GIBSON: Please prepare it.

Q. What is the company offering its lands for now per acre, acreage property?

Mr. WORKS: Same objection.

A. At Chula Vista the price ranges from \$225 per acre to \$350 per acre. We have offered all of quarter section 141 at the rate of \$225 per acre, the purchaser to take his choice of lots. In the Sweetwater valley we ask from \$150 to \$200 per acre, depending upon the character of the land.

Q. Now, in National City?

A. In National City the price ranges from \$150 to \$300 per acre.

Q. All this includes water for irrigation?

A. Yes; and applies to orchard property.

Q. That is to say, property suitable for orchards. Is that
342 what you mean?

A. Yes; that is what I mean.

Q. Now, the lands that the company sold outside of the town lots, both in National City and in National ranch, outside of the city, were sold, with the right to use water, were they not, for the prices which you have heretofore specified?

A. Yes; in all sales that were made after the water system was begun and completed. We made a few sales before the building of the system was undertaken, and I should say that those lands were sold without water, without the right to take it.

Q. At what price were they sold?

A. My recollection of the books is that the price ranged from \$50 to \$75 per acre.

Q. And how many acres were sold in the aggregate, about?

A. It would be a guess merely. I recall about 60 acres; it might be more.

Q. Not any great amount above that?

A. No.

Q. Now, with regard to the town lots in National City. Go right on and give your statement.

A. We have no established price of town lots. Since 1887 and 1888 we have had no opportunity to sell, and it would be a matter of trade between us largely what price would be put on at the present time.

Q. What are they held at or carried at as assets of the company?

A. The inventory would show approximately what we value them at, but I cannot give you that without reference to our inventory.

Q. Can you make such a reference and give us the amount?

A. I will. I would like to ask how fully you want this to be.

343 Q. Just the aggregate amount, and the average price per lot or the value per lot. I don't care for a detailed statement.

A. Yes.

Q. Can you give us the cost of the wasteway repairs? You were asked to furnish that from your books.

A. I have not prepared a detailed statement of that. I find the amount estimated as necessary to make repairs on the wasteway and the damaged pipe lines will exceed the estimates by about \$6,000, bringing that total somewhere near \$21,000; but I have not segregated the wasteway from the others.

Q. Under your statement heretofore regarding the manner in which the accounts are kept, the cost of repairs goes to the expense account and not to the cost of construction?

A. Yes.

Q. In other words, you do not add the cost of repairs to the original cost of your plant?

A. That is true.

Q. And it is true, as a matter of book-keeping, that those two accounts should be kept separate and distinct, is it not?

A. They should. So far as repairs purely and simply are concerned, they should not be charged into construction account. When additions are made to the original structures that is part of the construction.

Q. That is, where it is extended or added to?

A. Yes, sir.

Q. Referring to Exhibit 1, you state that of the bonds issued by the company, namely, half a million dollars, that the probable amount chargeable to the water system to date is \$200,000; new bonds issued to pay for new work, about \$100,000. You
344 have heretofore stated that none of the new bonds, excepting possibly a \$500 bond, have been sold; that they have been simply used as collateral?

A. Yes, sir.

Q. Now, on what basis is \$200,000 or thereabouts probably chargeable to the water system?

A. On the basis that at the time and after those bonds were sold the company was owing large amounts for the purchase of supplies and for labor done in the construction of its system, and that it had no other means of paying these except from the proceeds of those bonds, and my estimate is that at least that amount has been required for that purpose.

Q. How do you arrive at that estimate?

A. It is a rough estimate, made up from the amounts that were due about 1890 and 1891 and later.

Q. Then, if only \$200,000 of the half-million issue could probably be charged to the cost of construction of the water system, then the other \$100,000 of the new issue, which have not been sold at all, but simply pledged as collateral security, are not properly chargeable to that same account?

A. It seems to me to be immaterial whether we call that \$100,000

bonds or money raised in some other manner. The money was raised and the interest will have to be paid upon it.

Q. When was that \$100,000 raised?

A. In anticipation of the call for money by reason of the contracts we had entered into for the construction of the pipe line.

Q. Pipe line No. 2?

A. Pipe line No. 2 and other work. Large sums of money were borrowed.

345 Mr. WORKS: With these bonds as collateral?

WITNESS: With these bonds as collateral, and the money has since been paid for the work done on pipe line No. 2 and on the repairs of the dam also.

Q. What interest do the bonds draw that have been issued?

A. The \$500,000 draw seven per cent. interest.

Q. What interest are you paying on the floating indebtedness of \$100,000?

A. I understand—I have no personal knowledge of it, but I understand that it is six per cent.

Q. In Exhibit No. 1, in item four, you have it charged seven per cent. on \$300,000, aggregating \$21,000.

A. I might explain that in the sale of bonds it is generally necessary to underwrite the bonds at a lower value than its face, and that has been true with respect to our bonds—on the seven per cent. bonds. They were sold at the neighborhood of ninety cents on the dollar, bringing the actual interest charge above the seven per cent. In the six per cent. bonds that were issued, and which I supposed had been sold, the rate, while nominally six per cent., would probably have been greater by reason of the bonds selling at a less value than par.

Q. Are you referring to the second issue—six per cent.?

A. Yes, sir.

Q. They have not been sold—have simply been pledged. You want to bear that in mind.

A. I have that in mind; but it was upon the basis above stated that the interest charge was named at seven per cent., and I still think it a fair one, because, as I said, the actual interest on the \$200,000 is greater than seven per cent., and even if the interest on the \$100,000 was six per cent., placing the entire amount at seven per cent. would be a fair rate to name.

346 Q. What do you mean by actual interest as contradistinguished from the interest expressed on the face of the bonds?

A. In a bond of \$1,000 face value the interest at seven per cent. would, of course, be \$70 per annum. If, however, that bond is sold for \$900 the actual rate is greater than the nominal rate.

Q. That is to say, because you are required to pay interest on a thousand dollars and not on the actual amount received in cash for the bond sold; is that it?

A. Yes, sir.

Q. Referring to Exhibit 1, under item 7 you have given water rents realized from commencement of system to date. Please give the amount realized from the furnishing of water in National City

during the period covered under item seven, namely, from January 1st, 1888, to January 1st, 1894; also from January 1st, 1894, to July 1st, 1894, and from thence to July 1st, 1895, and from thence to October 1st, 1895. On examination of item 7, I find that the total amounts given for the years named, namely, 1888 to 1894, do not appear to be inclusive of lands outside of National City or exclusive of lands outside of National City.

A. The amounts named in the statements referred to are inclusive of all lands, lots, and domestic use under our system, wherever located.

Q. Can you give the proportionate amounts that the company derived of these aggregate amounts from National City?

A. I cannot accurately, but would estimate that for the first four years of our operation we received two-thirds of our income from National City, and for the last three years we have received one-half.

347 Q. Then the first four years would include from 1888 to 1891?

A. They would.

Q. And the last three years referred to would include from 1892 to 1894?

A. They would.

Q. Up to what time in 1894 is this statement made under item 7?

A. Up to and inclusive of December 31, 1894.

Q. Will you please furnish a statement of the amount received by the company from National City from January 1st, 1895, to July 1st, 1895, and from July 1st, 1895, to October 1st, 1895?

A. I will furnish such a statement.

Mr. GIBSON: This is to take the place of the first request made respecting such a statement.

Q. Explain what you mean there by item 8 in Exhibit 1. (Hands paper to witness.)

A. At the time this statement was prepared we had sold a water right for two acres of land, charging at the rate of \$50 per acre, and outside of National City we had sold water rights at the rate of \$50 per acre to the amount named, \$9,315.

Q. Those two last items under item 8 I see you have added to the aggregate or grand total received under item 7, making a grand total of \$120,395.58?

A. I have added the totals of items 7 and 8, making a grand total of \$120,395.58 received for water delivered and for water rights on lands.

Q. What is this statement under item 8, water department service per cent. credit, \$1,434.61?

A. The words "service per cent." should have been written "service account" instead of service per cent., and it means that
348 in the operations of our service department we show a credit of the amount named.

Q. How is that credit arrived at?

A. In this way: All material and labor that has been charged out to service account is exceeded by the amount paid to us by the applicants for services. We have made a profit on the services we have put in, and have in this statement given the charges for construction and maintenance of our system a credit.

Q. Making the total receipts \$121,754.19?

A. Yes.

Q. Did you give the total amount of the profit or only a part of the profit made on account of making service connections?

A. That is the total profits that we have made at the time this statement was prepared.

WITNESS: I request that I be allowed to change the words "per cent." to "account" in item 8 of Exhibit 1. (Witness makes the correction by inserting the symbol for account, ac.)

Q. In item 9 you give the total amount realized for water rents in the city of National City, as per statement to city, \$10,715.29. State for what year that receipt is intended. (Paper handed to witness.)

A. I refer to the year 1894.

Q. In item 11, Exhibit 1, you estimate that the amount that will be realized annually from water rents, as fixed by present ordinance, will be about the same as received in past year. Do you mean under ordinance 112?

A. Ordinance 112.

Q. Under item 12 you estimate the amounts that will be realized annually from water rents outside of National City \$15,000, about.

On what do you base that estimate?

349 A. I knew that additional land would be put under cultivation outside of National City. The company's plan at that time contemplated the planting of about 400 acres, and that, with some other increase that seems to me reasonable, would increase the income from the system outside of the city.

Q. In making that estimate did you take into consideration the probable increase of population and the consequent increase in consumption of water for domestic purposes, for which a higher rate is charged than for irrigating purposes?

A. I took into consideration all of the items that would likely increase our income.

Q. Did you consider that as one of the important factors?

A. Had I felt convinced that there would be any increase in domestic rates I should have added a certain sum for that, but I was under the impression that that increase would be very light, and my allowance for it was accordingly light.

Q. About what did you estimate it at? Was it not so light that it didn't practically affect the result in your estimate?

A. Yes, sir; it was so light.

Q. Did you make any allowance for probable increase in the population of National City in making your estimate?

A. I did not.

Q. Now, under item 13, you have estimated the value of the entire water system at the present time at \$1,100,000. Does that

include the cost of pipe line No. 2 and the repairs made upon the dam, which became necessary by reason of the damage caused by the flood of January, 1895?

A. It practically included those things.

Q. Did it include interest on the bonds and floating indebtedness that you have referred to in previous items?

A. Interest on the bonds and interest on the floating indebtedness?

Q. Yes.

A. It did not.

Q. Did it include either?

A. It did not.

Q. Did it include any portion of either of the items of indebtedness referred to?

A. It included the cost to us of the water system, and I found that was about what it would cost us after the \$100,000 was expended that we were under contract to expend.

Q. That is, under contract to expend in relation to pipe line No. 2?

A. Yes.

Q. Then the \$100,000 is included in the item, is it?

A. It is.

Q. How much of the \$500,000 is included in it—that is, the \$500,000 represented by the bonds?

A. I estimated that \$200,000 of the \$500,000 had been actually expended in the construction of the dam and other works of the system, and my estimate of a million dollars was intended to show my estimate of the value of the entire water system, irrespective of any debts there might be against it. Of course, the bonds that were outstanding, the proceeds of which had gone into the system, were, in one sense at least, an indebtedness against it.

Q. But, for instance, if \$200,000 of the \$500,000 worth of bonds went into the system and the interest on the indebtedness caused, say, by use of the \$200,000, and also the amount required to establish a sinking fund to meet that indebtedness, is charged up to the water-consumers, would they not be compelled to pay for that item twice?

A. What I understand you to mean is if we charge water-consumers a price that will leave us the interest on the bonds that we have invested, and at the same time a price that will yield us an interest on the entire investment, including the bonds, in the system. If that is what you mean, and if we received a sum sufficient to do both of these things, they would then be paying on the bonds twice.

Q. That is one aspect of it?

A. Yes.

Q. How do you provide for the payment of these bonds?

A. In the estimate furnished you the amount upon which we might ask for an interest charge would be reduced by the amount of bonds upon which we ask an interest charge. This refers to in-

terest payments only. I have made no provision for the payment of the principal of the bonds.

Q. Out of what is the principal payable?

A. It would be payable naturally from the proceeds of the property held as collateral for those bonds, which consisted of lands, railroad, and water system.

Q. Then it is to some degree a charge upon the water system, is it?

A. The bonds?

Q. Yes.

A. The water system is a part of the security given for the payment of the bonds to the bondholders.

352 Q. Now, take it this way: Supposing the water system, or, rather, say the water system being part of the security for the payment of the bonds, and the consumer is charged interest upon the indebtedness created by the bonds, or a proportion of it, and upon the whole cost of the system, and the instrument hypothecating the system as security for the bonds should be foreclosed, in what position would the consumer be placed? Would he have to pay off the amount that would be a lien upon the water system in order to protect his interests, and thereby be paying, in part, twice for the privilege of using water, or what would the result be?

Mr. WORKS: Objected to on the ground that the question put to the witness is as to a purely legal matter and not a matter of fact.

Mr. GIBSON: It is a matter of fact how this company arrive at their ratio of charges.

Q. The object of this question is to ascertain, if I can, upon what basis the company charges interest upon an indebtedness claimed to have accrued on account of the construction of the works and then interest upon that interest in addition to the cost of the works.

A. I will answer that by saying that the question involves so many things that ought to be answered by one learned in the law that I shall not attempt it. As to the latter part, which asks for an explanation of how we arrive at a basis for asking water rates, I will say that I find from computations made that the net cost to us of the system, after deducting all receipts and without charging up any of the depreciation charges or interest charges, except as shown in Exhibit 2, the amount is \$1,081,929.51. Now, from this I 353 would deduct the \$300,000 in bonds, and, in order to give the consumer every advantage, would deduct the value of the water rights remaining, which, if they could be sold at once, would be worth \$200,000, reducing the million of dollars above referred to by \$500,000, bringing the net amount on which an interest charge ought to be given us to \$581,929.51. An interest charge on this, together with the cost of operating the system and a depreciation charge, as shown in Exhibit 1, it would seem to me, would give the fair amount that the company should receive in water rentals.

Q. Now, that net amount of \$581,929.51 is reached without any consideration of the amount that the company had heretofore received or received prior to the 20th day of February last from the sale of lands and water?

A. It is made without regard to the amount received from the sale of lands with water, for the reason that while we were selling our lands with water we were allowing other landholders to use our water and acquire water rights thereby without receiving any compensation from them.

Q. But regardless of the fact that your company delivered water for compensation to persons owning land who did not buy them from the company and without charging them for any water right as such, still in reaching this net amount you excluded from consideration in connection with it the sale of land and the right to use water by the company?

A. I did exclude it.

Q. In estimating the value of the entire water system under item 13 of Exhibit 1 you did not take into consideration the amounts derived from the sale of lands sold by the company with the right to use water or the lands and city lots still owned and held 354 by the company within and below the 190-foot contour of the reservoir, did you?

A. I did not.

Q. What income was derived from leased land in 1894?

Mr. WORKS: Objected to as immaterial, irrelevant, and incompetent.

A. \$3,263.86.

Q. How much from fruit sold in 1894?

A. \$3,455.74.

Q. Have you made any comparison of the different amounts that are chargeable under the different ordinances, namely, 107, 112, 118?

A. I have made no close comparison. I have compared ordinance 112 and ordinance 118 far enough to lead me to conclude that they would yield us practically the same amount per annum.

Q. What amount of money did the company receive in 1894 from land not previously irrigated, under the provisions of ordinance 112, in National City? I will say the special provisions of the ordinance I refer to were: \$3.50 is charged for water furnished to property previously irrigated or under irrigation and \$7 for non-irrigated property or property not previously using water for irrigation.

A. You refer to the \$7 provision?

Q. Yes; particularly.

A. My recollection is that there was no land taken out in National City under that provision.

Q. In the year 1894?

A. In the year 1894. That is my recollection.

Q. We have been trying to arrive at the amount of water fur-

nished in the aggregate in National City and to consumers outside of National City for domestic purposes as distinguished from that furnished for irrigation purposes in each of these localities. Can you furnish such a statement?

A. I cannot.

Q. Can you approximate the several amounts?

A. I could not, for the reason that the water used for domestic purposes is taken from the same main, and largely from the same services which supply irrigation water, and without a very accurate measurement of both irrigation water and domestic water it would be impossible to make an estimate.

Q. Are your accounts kept separately of the amounts received for irrigation and the amounts received for domestic use?

A. They are not. The entire use of any applicant is entered upon an application blank, and the total amount of his rate, including domestic water and irrigation water, is placed upon the rate book.

Q. How does the company arrive at the basis of charge for domestic use?

A. It has made up its domestic rate by taking the usual rates charged for those purposes in towns and cities of this coast.

Q. Then the rates which the company claims ought to be charged for domestic purposes are not based upon local conditions, are they, but upon rates charged for similar services elsewhere in the State?

A. The total amount the company should receive is, of course, made the basis for the rates, but in distributing the amounts charged for the different items we have aimed to make them conform as nearly as possible with the rates usually charged for those purposes.

If we were to insist upon an income that would give us what capital ought to be fairly entitled to it would doubtless increase the rates we have asked very much.

Q. The rates elsewhere were supposed to be reasonable, were they—rates that you used to fix a basis for domestic charges?

A. They were supposed to be reasonable in other places, and we aimed to make ours reasonable even though we sacrificed our own interests thereby.

Q. Do you mean to be understood as saying that no matter how high these rates should be fixed for both irrigating and domestic uses, still the company would not receive a fair income upon its investment, according to the company's theory?

A. That is what I meant to say, on the theory that the number of people in National City and in the territory that we are now serving is so limited.

Q. Then the loss to the company comes from lack of population or for the reason that the population does not come up to the expectancy of the company, does it?

A. The loss to the company comes because it has not sufficient water-takers at sufficiently high rates.

Q. Then the rates for domestic use, being fixed upon what is usually charged for similar service elsewhere, leaves the balance that the company seeks to make up or claims should be imposed upon the users of water for irrigation, does it?

A. The rates we receive for domestic water either increase or diminish the total income we receive. We have, in the ordinance presented to the city, asked for rates that seemed reasonable, and it is not based entirely upon whether the company would, if adopted, receive an adequate income.

Q. When you refer to an adequate income you mean an
357 adequate income upon what is claimed to be the cost of the water system, exclusive of the value of the land, irrigable land, owned by the company, and the proceeds of irrigable land heretofore sold?

A. It had never occurred to me that the value of irrigable land heretofore or in the future to be sold should be deducted from the cost to us of the water system.

Q. According to the company's theory, then, in order to realize an income upon the amount invested regardless of the irrigable land owned by it and the irrigable land sold by it, it would be necessary to charge from \$20 to \$28 or \$30 per acre per annum for irrigation, would it not?

A. I have not figured out what the rate would have to be to yield us an interest on the investment.

Q. I base that statement on your previous testimony. I think you will find that it will figure out about that. I will ask you if, from your knowledge of the profits that may be derived from irrigated land in that section, it would not be impracticable to cultivate land by irrigation and produce any of the known products that may be grown in that locality upon irrigated land where the rate per annum for irrigation would have to be \$20 or over per acre.

A. My knowledge of what profit may be derived from land does not extend to a cultivated orchard of mature age. At the same time I believe that a rate of \$20 per acre or over is a higher rate than the fruit grower or cultivator can pay.

Hearing continued until Tuesday, October 15th, 1895, at 9 o'clock a. m.

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TUESDAY, *October 15th*, 1895.

JOHN E. BOAL recalled on cross examination.

By Mr. GIBSON:

Q. Mr. Boal, have you ascertained the number of acres of land in National City above the 140-foot contour line?

A. I have.

Q. Both owned by the company and by others?

A. Yes, sir; I find —

Mr. WORKS: We object to the testimony as to the quantity of land either above or below the 140-foot contour lines on the ground that the same is immaterial, irrelevant, and incompetent.

A. I find the company owned 235 acres above the 140-foot contour line and that others owned 150 acres, a total of 385 acres in the city above that elevation.

Q. State the number of acres owned by the company outside of National City between the 140-foot and the 190-foot contour lines.

Mr. WORKS: We make the same objection.

Q. And acreage owned by others?

A. I find that outside of National City the company owns 1,796 acres between the 140-foot and the 190-foot contour line, and that others own 364 acres, making a total of 2,160 acres between those two elevations.

Q. Are those several amounts of land given in acres to be added to the lands in Exhibit No. 4 as being owned by the company and by others?

Mr. WORKS: I make the same objection.

A. These several amounts are to be added to the amount of land reported below the 140 contour line in the statement referred to.

359 Q. Are you now able to give the value of the lots in National City owned by the company, as shown by the statement of assets of the company?

A. I find that—

Mr. WORKS: The question is, are you able to give?

Mr. GIBSON: Say yes or no.

A. Let me ask a question. Do you mean the true value of the property or do you mean the value as reported?

Q. As shown, as I asked you before, by the statement of assets, the valuation at which the company is carrying such lots. Now, I will ask you to state the value.

Mr. WORKS: We object on the ground that the question and the testimony sought to be elicited by it are immaterial, irrelevant, and incompetent.

A. \$134,020.

Q. Does that amount include all the lots in National City owned by the company?

A. It includes those lots only that have not been sold at any time by the company and returned to them.

Q. Can you state the number of lots that the company is under contract to sell, and their value?

Mr. WORKS: The same objection.

A. I cannot.

Q. Can you approximate the number or the value, or both?

A. I can approximate the number—from 300 to 450 lots now under contract. I could not approximate the value of them.

Q. They would be of the same value as the others, the lots not sold, would they?

Mr. WORKS: Same objection.

360 A. Probably.

Q. How many lots are there included in that valuation of \$134,020?

Mr. WORKS: The same objection. Let it be understood that all this matter with reference to the value of these lots comes in subject to our previous objection.

Mr. GIBSON: Yes, sir.

A. I estimate about 1,700.

Q. Are you ready to state the approximate quantity of water used in National City and outside of National City, separately, for the years 1891 to 1894, inclusive?

A. Yes; approximately.

Q. Just state it.

A.—

In 1891, National City approximately.....	425,000,000 gals.
Outside of " "	725,000,000 "
1892, National City approximately.....	475,000,000 "
1892, outside " "	1,100,000,000 "
1893, National City approximately.....	475,000,000 "
1893, outside " "	1,400,000,000 "
1894, National City approximately.....	475,000,000 "
1894, outside " "	1,700,000,000 "

Q. How do you arrive at those approximations?

A. By taking the population of National City at 1,300, with a *per capita* use of 200 gallons per day, adding to this the use of 525,000 gallons per acre upon 747 acres irrigated within the city, and outside of National City the total area irrigated each year is multiplied by the same number of gallons *per capita*; to which is added the *per capita* of 500 people.

Q. That is the domestic use of 500 people?

361 A. Yes, sir.

Q. Do the inhabitants of National City average 200 gallons per day *per capita*?

A. It is an estimated quantity and includes the water used in irrigating lots, the water used on streets by the city both for sprinkling, for the irrigation of street trees, fire use, and such other public use as there is in the town, and I believe the 200 gallons *per capita* would be a reasonable estimate.

Q. Then that includes the use for all purposes in the city?

A. Yes. In approximating the use outside of National City I have taken the irrigation by years. I find in 1891 we irrigated approximately 1,339 acres outside of National City, in 1892 approximately 2,036 acres, in 1893 approximately 2,596 acres, in 1894 approximately 3,148 acres. Now, there is a further explanation. I would say that somewhere in the testimony I said there was no additional acreage put under irrigation in 1894. The statements from which these totals were taken were made late in each year, and in 1893 it did not include the large acreage put out by us and

some put out by other people, so that while the increase is shown for 1894, it would more properly belong to 1893.

Q. This is the total amount as you approximate it—3,148 acres for 1894?

A. It is the total amount irrigated outside of the city.

Q. Including the land that the company put under cultivation?

A. Yes.

Q. Do all the people in National City receive their water supply from the company?

A. Probably not all.

Q. About what number receive their supply from other sources?

A. I could not form any intelligent estimate of that.

362 Q. What are those sources of supply?

A. The other sources of supply would be wells.

Q. Ordinary wells, I suppose?

A. Yes, sir; ordinary wells.

Q. In approximating the amount used outside of National City you say that the total area irrigated each year was taken and multiplied by 525,000 gallons per acre, and this was added to the domestic use of 500 people. Just explain the domestic use of those 500 people.

A. On that estimate I believe I took 50 gallons *per capita* as the probable use per day. That is on the theory, of course, that under their irrigation rate they paid for all uses except the actual domestic use within their homes and for furnishing their stock about their homes, and would necessarily be very much less than the total chargeable within the city after including all the other uses that I have enumerated.

Q. Now, with regard to the lands in National City above the 140-foot contour line, are they below the 190-foot contour line—that is, between the 140-foot and the 190-foot contour lines?

A. They are.

Mr. WORKS: Do you mean to be understood that none of the lands in National City are above the 190-foot contour line?

Witness: None that I have included in this statement. I have reference to the acres I have given here.

Q. These town lots—they are all below the 190-foot contour line, are they not?

A. They are.

Q. And principally below the 140-foot contour line?

A. Yes.

363 Q. Can you now, as previously requested, state the amount if interest that the company received on contracts for sale of land made on time in National City, in National ranch?

Mr. WORKS: We object to that on the ground it is immaterial, irrelevant, and incompetent.

Q. If so, state them separately.

A. I can. We have received interest on lands sold within the city, \$14,343.27, and outside of the city within the National ranch,

\$21,362.28, a total from both the city and outside of the city within the National ranch of \$35,705.55.

Q. Now, up to what date does that reach ?

A. That reaches to the present date—October, 1895.

Q. Can you tell how much of that was received prior to February 20th last ?

A. I cannot.

Q. Can you approximate it ?

A. We have received very little since February 20th last.

Q. Would the amount so received make any appreciable difference ?

A. It would not.

Q. What amount of money has the company derived for furnishing water in National City from January 1st, 1895, to June 30th, 1895 ; also from July 1st, 1895, to September 30th, 1895 ?

A. I have a statement prepared from our water books which shows that we have collected in cash from January 1st, 1895, to June 30th, 1895, \$3,969.01. There is also delinquent but good accounts which we will be able to collect, \$649.44. I find there is another item also of rebates made in the first half of this year due to inability to supply water for domestic use because of the breaking and washing out of our main supply pipes, which amounts to

\$672.32, showing that in the normal condition of our pipe system we would probably have collected from National City for the first half of this year \$5,290.77. From this same statement I also find that we have collected in cash from July 1st, 1895, to September 30th, 1895, \$1,691.35, and there are good accounts in addition, amounting to \$878.05, showing the revenue for the time to be \$2,569.40.

Q. The company received from sales of land outside of National City and in National rancho a large amount of money, did it not ?

Mr. WORKS : We object to the question on the ground that it is immaterial and irrelevant and incompetent.

A. It has.

Q. About how much in the aggregate ?

(Same objection.)

A. About \$1,173,410.20.

Q. To what account do you charge amounts received from sale of water rights ?

A. They have been charged at the present time to water-right account. It simply stands as an open account, with a credit of whatever amount we have received.

Q. For instance, the cost of the plant stands as so much of a credit on your books—stock account ?

A. The cost of our plant—do you refer to the water plant or the entire business ?

Q. Take the water plant.

A. That stands as a debit on our books.

Q. The amount paid out for it ?

A. The amount paid out for it.

Q. Are the amounts received from the sale of water rights credited to that account?

A. They have not been.

365 Q. Have not been credited to any account?

A. No; excepting, as I say, an account is opened for them and it simply stands upon our general books as a credit.

Q. Has the company any purpose to carry them to any other account?

A. I am unable to say what they propose to carry it to.

Q. Just explain how that account stands on your books.

A. The account stands as a credit on our general books under the heading of "Water rights." It will at some time—but that is not part of the question.

Q. But how is the money disposed of that is received from the sale of water rights?

A. It goes into the general cash fund. It is one of the items that go to make up our total receipts.

Q. In estimating the earnings of the water plant how is it used, if at all?

A. It is stated as income from water separately from the water rates.

Q. Does the company, if you know, contemplate establishing a sinking fund with it or carrying it to the credit of the cost of the water system or not?

A. I don't know what their final disposition of it will be.

Q. Regarding the amount to be charged for water right, you have stated that \$100 is a low amount; state how you arrive at that.

A. The cost of developing the necessary amount of water for one acre of land, taking the total number of acres to be supplied, and the domestic water to be supplied has been greater than \$100 an acre. There are probably 6,000 acres in the system that can be furnished with water, and the cost of that to us has been
366 over a million dollars, showing that the cost of developing water for one acre is very much above \$100.

Q. Then you take the total cost of the water system and divide it by the number of acres that you say the company can irrigate in order to arrive at the value of the water right; is that it?

A. We have not fixed the value on that basis, but it is one of the ways of showing what a water right ought to be worth.

Q. State the basis upon which the company bases the valuation of \$100.

A. That amount was reached in about this way: We found the cost to us of water for one acre was between \$150 and \$200 somewhere, but we concluded that \$100 would be a fair price to ask consumers, and that a higher amount would be burdensome upon them. It was adopted in order to reimburse us in part for the expense we have been at in developing water for those acres that use it.

Q. State the manner in which the company reached the valuation of \$100; in other words, upon what that valuation is based.

A. I don't know that I can give it any more fully than above.

Q. You say the company found that that would vary from \$150 to \$200 an acre. Was that reached by dividing the number of acres that the company claims it could irrigate into the cost of the plant as claimed by the company?

A. Yes; with proper deductions for the water that would be used for domestic purposes.

Q. What deductions were made for that—for such purposes?

A. I don't recall the figures.

Q. Then the real basis of that valuation is the cost of the plant?

367 A. Yes, sir.

Q. And the object in seeking to obtain compensation in that way is to reimburse the company in part for its outlay in constructing the plant?

A. Yes.

Q. Was not the company organized principally as a land company to sell and dispose of lands?

A. I think it was.

Q. Was it not found that a large area of land in National ranch and contiguous territory could not be profitably disposed of without water?

A. I think that is so.

Q. And that that induced the construction of the water system to dispose of such lands?

A. I think so.

Q. Is it not so stated in the reports of the officers of the company to the stockholders or some of them?

A. I don't recall what those statements are, but they would show for themselves.

Q. I refer particularly to the report of 1887 made by President A. B. Lawrie, dated at Boston, April 5th, 1888.

Mr. WORKS: I reserve an objection to all this line of testimony as immaterial, irrelevant, and incompetent as to the purposes for which the corporation was organized or the amounts realized by the company in the advanced prices of its lands or for lands sold.

Mr. GIBSON: Certainly.

Q. Examine the report I have referred to, particularly on page 7. You may read on page 7 and the first line of page 8.

368 Mr. WORKS: We object to the question and the evidence sought to be elicited on the ground it is incompetent, irrelevant, and immaterial.

A. (Witness reads:) "The original acreage owned by the company was about 37,894 acres, of which about 5,161 acres have been sold, leaving about 32,733 acres now owned by the company. The general manager's report gives the quantity clearly and in detail. The location of the bulk of the company's lands are such that a per-

manent and abundant supply of water was necessary in order to profitably and satisfactorily develop and sell them. To meet this want there was commenced, in 1888, the construction of an elaborate system of water supply under the direction of J. D. Schuyler, the company's chief engineer. A dam 80 feet in height and constructed in a most solid and substantial manner has been built across the bed of the Sweetwater river from hill to hill, and a reservoir made capable of holding sufficient water to supply for at least two years a population of 15,000, and to irrigate 18,000 acres of land. The main pipes are nearly all laid to supply a large area with this water, and service pipes are being put in as rapidly as possible. At the date of our last advices there were 69 feet of water in the reservoir at the dam, and the success of this undertaking is assured."

Q. In connection with that we call your attention to the report of the president to the stockholders of the company, dated at Boston, April 20th, 1889, and signed by Benjamin Kimball, president. Please read the portion within brackets, marked with a lead pencil, on page 12.

Mr. WORKS: Same objection as before.

A. (Witness reads:) "Probably the most important achievement of the year has been the completion of the Sweetwater dam with its reservoir of 700 acres in extent and its pipe-line system distributing an ample supply of water under pressure for business and domestic uses and for irrigation throughout National City and Chula Vista and over about two-thirds of the National ranch. This has successfully solved the problem of the irrigation of this property, has already invited extensive settlement and planting, and has enabled your company to offer for immediate sale and occupancy the most desirable land for fruit culture in southern California."

Q. Has it not been the policy of the company since its water system was constructed to induce settlement in National City and the National ranch and vicinity by offering its lands for sale and promising an abundant water supply from its system and in connection therewith?

Mr. WORKS: Objected to as immaterial, irrelevant, and incompetent.

A. It has been the company's policy to induce settlement on its lands.

Q. And by promises of an abundant water supply?

A. Yes.

Q. I now hand you two advertisements of the company, one dated November 6th, 1889, signed by William G. Dickinson, general manager, National City, California, and the other dated May 14th, 1892, signed by John E. Boal, acting general manager San Diego Land and Town Company, National City, California, and ask you if they were not and are not samples of the standing advertisements of the company respecting lands and rates at which water would be supplied to such lands that it offered and is offering for sale.

Mr. WORKS: Same objection.

370 A. They are samples of our advertisements. I don't want to be understood as saying that we followed this sample in every case. We varied to suit the requirements of the case, but they do state the rates at which water would be furnished up to the present year.

Q. They are both the same, are they not, in wording? They are both worded the same, are they not?

A. They are, so far as I can tell from a hasty examination. I believe they are exactly alike.

Mr. GIBSON: I offer these in evidence as Defendants' Exhibits C and D. All we offer on these exhibits are the advertisements referred to upon the fourth or back page of each.

Mr. WORKS: It is subject to our objection, of course.

Mr. GIBSON: Certainly.

Marked Special Examiner's Exhibits Defendant- C and D.

Q. Was not the idea of deriving a revenue from the sale of water rights to obtain a reimbursement in part for the outlay made by the company to construct its water system an afterthought and only attempted to be enforced when the sales of land decreased?

A. It was a change in policy on the part of the company. It may have been induced by its failure to sell lands, although I do not know that that was the reason for it.

Redirect examination.

By Mr. WORKS:

Q. You have been asked with reference to the effect upon the value of lands under this system of putting water on the lands, and you have testified that it increased the value and the selling price of the lands very largely. Was that effect confined to the lands of the San Diego Land and Town Company or did it affect the lands of other owners under the system in the same way?

371 A. It affected all lands in the same way.

Q. Were sales made by other persons at these increased prices as well as the land and town company?

Mr. GIBSON: Objected to as incompetent, irrelevant, and immaterial.

A. Sales were made at the increased price by others.

Q. At the time the company was selling its own lands at this increased price and furnishing water without any charge for water rights, did it charge any water right to other land-owners who sold their property or did they get the same benefit of it?

Mr. GIBSON: The same objection.

A. There was no water right charged to any of the lands, and all received the same benefit.

Q. Were there any other improvements made by the San Diego Land and Town Company which had a tendency to increase land

values and facilitate the sale of lands in that section other than the putting in of the water system?

A. They constructed a railroad through National City and Chula Vista, connecting both of those places with San Diego, and maintained a rapid and frequent train service for a number of years. In Chula Vista they graded streets and set out sidewalk trees, not only in front of their own lands, but in front of lands of other owners. They also made some improvements in National City in the way of grading streets at their own expense.

Q. Could you give in round numbers what expense was incurred by the company in putting in this railroad?

Mr. GIBSON: The same objection.

A. Between four and five hundred thousand dollars.

372 Q. I wish you would explain in general terms the line of this railroad and how nearly it connects with the entire body of land under this system, to show the facility with which land can be reached.

Mr. GIBSON: Let all this in relation to this railroad go in subject to our objection already made.

Mr. WORKS: Yes.

A. Shall I begin with its location at San Diego?

Q. Yes.

A. The railroad starts at the foot of Fifth street, San Diego, and runs southerly through Manassee & Schiller's addition, Land and Town, Reed & Hubbell, and South Chollas, Hoel & Richter's addition to the National City line; then along National avenue, National City, from the city limits to Twelfth street; then westerly on Twelfth street to Eighth avenue; southerly on Eighth avenue to 24th street; easterly on 24th street to what is known as Terrace avenue; then southeasterly to the Sweetwater junction, where the line divides, and one branch known as the Sweetwater branch runs easterly to the Sweetwater dam and La Presa, and the other branch runs southerly from Sweetwater junction on Fourth avenue, Chula Vista, to E street; thence westerly to Third avenue; southerly on Third avenue to Otay, and from there south, west, and southeasterly to Tia Juana, on the Mexican boundary line.

Q. Does the road pass anywhere near the center of the body of land known as Chula Vista?

A. It does. Third avenue is the center of that part of Chula Vista that lies east of National avenue.

Q. If I understand you, it passes entirely through that tract and into the Otay?

373 A. It does.

Q. And across the Otay?

A. Across the Otay.

Q. The National ranch has been mentioned at various times. Is National City within the National ranch?

A. It is; it occupies the northwesterly corner of National ranch.

Q. In giving the valuations of National City lots I understand

you took the report of the treasurer or some other officer of the company as fixing those valuations. Do you regard the valuations fixed in that report as the real value of those lots?

A. I do not. In explanation of that I will say we have a good many acres in pueblo north of the city of San Diego proper which is valued in this report at about \$141,000, and we have within six months offered that land at prices ranging from \$45,000 to \$95,000.

Q. What do you think is the real value of those lots as compared with the valuation given in that report?

A. It would be impossible to say. We could not sell any considerable number of those lots at the present time at any price.

Q. Would they be worth one-half the valuation, do you think?

A. We could not get one-quarter of the valuation today, in my judgment. At the same time we would not feel justified in selling them at that price.

Q. In the report of the president of date April, 1888, from which you have been asked to read, the number of acres and the value of the lands of the company are stated. Are all of these lands under and tributary to this system, or only a part of them?

374 A. The number of acres stated in that report as the property of the company included all of the lands owned by the company, the very much greater part of which is not tributary to this system.

Q. You have been asked with reference to the policy of the company in establishing and charging a water right and charging a rate of fifty dollars per acre for the water right. Do you know whether that policy was made necessary because the experience of the company had demonstrated that it could not otherwise realize any profit upon its water system?

A. It was demonstrated that it could not obtain a revenue from its system at the rates that were charged or likely to be obtained, and the water right was adopted as necessary to compensate them in part for the expenditures made.

Q. Had the company up to that time received a return on any of the principal of the money expended by it in putting in the system?

A. It had not.

Q. You have been asked what you understand to be the reason and basis upon which these water rights are charged. I will ask you whether or not the charge has been made upon the theory that it is proper for the company to charge for the water right proportionately from each consumer for the purpose of remunerating the company for the expenditures made by it in putting in the system for public use.

A. The company felt that it was entitled to a part repayment of the amount expended by it in developing water for the land, and it believed that each acre should pay its proportion.

Q. Suppose the company should charge and collect the rate now fixed for water right—\$100 per acre—upon all the lands that
375 could eventually be irrigated from the system, would it repay

anything near the amount that was invested in the system by the company?

Mr. GIBSON: Objected to as incompetent, irrelevant, and immaterial.

A. The company had remaining the first of January, 1895, about 2,000 acres of water—that is to say, it could furnish in addition to what it was then furnishing about 2,000 acres of land. If it charged each of these acres \$100 it would, of course, receive \$200,000, while the system has cost us over a million dollars, showing that it would receive in that way about one-fifth of what the system cost us.

Q. Have you made any estimate of the percentage of the land that may be reached and covered by the system owned by other owners than the company as to whether it would amount to one-fifth or more?

Mr. GIBSON: Objected to as irrelevant, incompetent, and immaterial.

Mr. WORKS: I suppose it is merely a matter of figuring from the reports already in.

A. Does your question refer to the amount of lands we had originally or the amount we have remaining?

Q. You might put it both ways, so as to make a complete showing of it.

A. (Witness makes computation.) I find from statements made before, I think on Exhibit No. 4, that the company owned, in 1887, below the 140-foot contour line, about 5,200 acres of land that might have been irrigated, and that others owned something over 4,300 acres. Of the company's land 1,645 acres are irrigated, 376 and of the lands owned by others 1,950 acres are irrigated, leaving unirrigated of the company's land about 3,500 acres, and of other owners over 2,300 acres. Now, the proportion that the unirrigated lands of others—

Q. Hadn't you better take the irrigated lands first?

A. The proportion that the irrigated lands of others bears to the whole number irrigated is as 19 is to 36, and the proportion that the irrigated lands of the company bears to the whole is as 16 is to 36. The proportion that the unirrigated lands of others bears to the total area not irrigated, below the 140-foot contour line, is as 24 is to 59, and of the unirrigated lands of the company it is as 35 is to 59.

Q. If you were to take into account the lands owned by the company and by other persons between the 140-foot and the 190-foot contour lines would it materially change the proportions?

Mr. GIBSON: The same objection as last heretofore made.

A. It would not materially change the proportion of the unirrigated lands.

Q. Would it materially change the proportions with respect to the irrigated lands?

A. If it were possible for us to irrigate the lands between those

two contours the company would have much the greater proportion.

Q. Can you tell about what that proportion would be between the two lines mentioned?

A. I would estimate that within National City the company would have once and a half as much land as other owners between those two contours, and outside of National City four or five times as much land as others.

377 By Mr. GIBSON:

Q. I will ask you, Mr. Boal, if the principal amount of land that the land and town company first acquired was not land donated to the Southern California Railroad Company which caused the land and town company to be formed and which conveyed the land so donated to the land and town company, as set forth in the report of A. B. Lawrie, president of the company, dated at Boston, April 5, 1888, heretofore referred to, and which I now hand you.

Mr. WORKS: Objected to as immaterial, irrelevant, and incompetent.

A. I have no personal knowledge of this, but I understand that the statement made by the president is in accordance with the facts.

Q. What are those facts as shown by the report referred to?

Mr. WORKS: Objected to as irrelevant and incompetent.

A. (Witness reads:) "A brief résumé of the history of the company may be of interest to many of the stockholders who are not familiar with its early days. In 1880 certain parties owning lands on and about San Diego bay and interested in promoting the construction of the railroad from that point to a connection with the Atlantic & Pacific railroad offered as a donation or subsidy to aid in the building of such a road certain lands. As a result of this offering, the California Southern Railway Company was formed to build the railroad. It was afterwards found that under the laws of the State of California a railroad could not operate or deal in lands, and accordingly the San Diego Land and Town Company was organized under the laws of the State of Kansas on January 19th,

1891. In the meantime the parties who formed the railroad
378 company had bought other lands in the vicinity of those donated and which seemed to offer excellent chances for investment. These lands, with those donated to the railroad company, were all deeded to the town company, and payment for the same was made in the capital stock of the company at par, the whole amount so paid being one million and a half, the entire capital stock of fifteen thousand shares of the par value of \$100 each."

Q. Was not the Otay railway built to aid in the sale of the land referred to in President Lawrie's report?

A. It was, partly.

Q. Did not the construction of that railroad from the point in

San Diego that you have specified, through the National ranch, aid largely in the disposal of lands that were not under the irrigation system, and particularly the lands in the Land and Town Company's addition to the city of San Diego, between the populous portion of the city of San Diego and National City?

A. It doubtless had some effect, but I think the lands would have sold without the railroad being constructed, for the reason that before our railroad—before the National City and Otay railroad—was built through the Land and Town Company's addition a street railroad had been constructed into this addition, and the principal part of the improvements has since been made in the part of the town through which the street railroad passed, and not along the line of the National City and Otay road.

Q. How with regard to other lands owned by the company?

Mr. WORKS: Do you mean not covered by the system?

Q. Yes; not covered by the irrigating system.

A. I think it had but very little influence on other lands outside of the system.

379 Q. Did not the construction of the water system aid in the sale of lands at an enhanced valuation that are not capable of being irrigated from the system?

A. I think not. We made no sales in territory near which we were supplying water, excepting the lands within National ranch and under the water system, and I cannot see how the lands in Ex-Mission, for instance, and in the pueblo north of San Diego proper could have been influenced in any way by the construction of the dam.

Q. Were not the lands in the land and town company's addition to San Diego affected by the construction of the company's water system and the settlement of National City and Chula Vista?

A. I suppose that all lands were affected, more or less, but it was a very remote effect, because those lots were so near San Diego that they depended upon San Diego's water supply and railroad facilities for development.

Q. Yes; but, while they may have depended upon these factors for development, was it not a fact that the settlement of National City, adjoining their territory on the south, increased their value and aided in the disposal of them?

A. I think it would be very difficult to say whether that was true or not; it may have been.

Q. And you would affirm the same with regard to all the additions to San Diego in which the company had lots between and including Horton's addition and the land and town company's addition?

A. I will give as my opinion that whatever effect the building of our system had in territory so far south as San Diego, as it is, must have been a very remote effect.

380 Q. The territory between the populous portion of San Diego—that is, in Horton's addition to San Diego—and

Chula Vista, adjoining National City on the south, is a settled territory now, is it not?

A. Portions of it are.

Q. Well, the principal portion?

A. The tract known as the 22nd Street addition and Reed and Hubbell's addition is a well-settled portion. South of Reed and Hubbell's to the National City line is unsettled. There is a distance of a mile and a half or two miles in which there is practically no settlement.

Q. That consists largely of marsh lands, does it not?

A. It consists largely of lands that are suitable for settlement. There is perhaps a quarter of a mile or less that is marsh; the balance is high land.

Q. The grading of streets and the planting of trees that you have referred to was not done for the benefit of property owned by others, but was done by the company for the purpose of disposing of the lands that it had for sale affected by the improvements, was it not?

A. That was its prime object; at the same time the company graded streets in front of other property-owners and gave them the benefit of that improvement.

Mr. GIBSON: I think that will be all.

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(Afternoon session, 1.30 p. m.)

J. D. SCHUYLER, being called as a witness for the complainant and being duly sworn by the special examiner to testify the truth, the whole truth, and nothing but the truth in this cause, now testifies as follows:

Direct examination by Mr. WORKS:

Q. Where do you reside?

A. I now live in Los Angeles.

Q. What is your occupation?

A. I am a civil engineer.

Q. How long have you been actively engaged in the practice of your profession?

A. I began the practice of my profession in 1869, twenty-six years.

Q. I wish you would state generally what the extent of your practice and experience as a civil engineer has been in connection with the construction and operation of water systems, reservoirs, dams, and the like, and for what companies you have acted, either as construction or consulting or managing engineer.

A. My first experience, I would say in general, was my engagement with the State engineering department as chief assistant in charge of the irrigation department, and in that capacity I conducted the investigation of the irrigation works throughout the State of California and was in charge of the measurement of waters and the calculation of irrigation statistics and data in all parts of the State. Prior to that, however, I had had considerable work in connection with the water works of San Francisco and Oakland as consulting

engineer of various improvements proposed. The work with the State engineer lasted some years. It was interrupted by an offer of an engagement to come to San Diego to take charge of the construction of the Sweetwater dam. This work was begun in January, 1887, and continued until its completion, in April, 1888. After the completion of the dam and distributing system I continued as consulting engineer for the company until some three years ago, I think it was, and since then, whenever any important work was in progress, I have been called upon by the same company. I have had charge of the construction of works in Denver, as the consulting engineer for the Citizens' Water Company, for some three years. I designed the works of the Bear River Canal and Irrigation Company, in Utah. I have constructed four large reservoirs in the city of Portland. I have been called upon as consulting engineer for a large number of irrigation companies and irrigation districts, which I will not take the time to enumerate, but they are scattered in all parts of this country, as well as in the Sandwich islands.

Q. You say you were first connected with the San Diego Land and Town Company as constructing engineer in January 1887. How long did you continue to act as constructing engineer for that company?

A. Until the completion of the works.

Q. State generally what the works constructed under your supervision were.

A. The design and construction of the masonry dam and the pipe distributing system connected therewith and the preparation of the reservoir for use.

Q. Of what kind and what quality of pipe, generally speaking, did the pipe line consist?

A. The main pipe line, starting at the Sweetwater dam, consisted of about 1,500 feet of 36-inch wrought-iron pipe of No. 7 Birmingham wire gauge from the dam to the exit of the canyon into the valley proper, where a blow-off pipe was located and the main line reduced in diameter to 30 inches. This diameter continued of the same quality of pipe, slightly thinner—my recollection is that the gauge was No. 8 and 9—for the remainder of the line to Chula Vista, to the junction of what is known as E street and Fourth avenue, Chula Vista, where the pipe was reduced to two 24-inch lines, one running west on E street as far as the National avenue, or near there, the other running south for a mile on Fourth avenue. The 24-inch line that I refer to was partially of spiral riveted pipe. I don't remember the thickness. A portion of it, however, was the wrought-iron riveted pipe made by the Risdon Iron Works of San Francisco, who furnished all the wrought-iron pipe, with the exception of the spiral pipe bought from the east and the kalamined lap-welded tube. By referring to a paper which I prepared after the completion of the works for the American Society of Civil Engineers, I could testify as to the percentage of each.

Q. You may refer to any memorandum made by yourself to re-

fresh your recollection with reference to it. (Witness refers to pamphlet.)

Mr. GIBSON: What page do you refer to, Mr. Schuyler?

WITNESS: I was looking at the memorandum of the classification of the pipe, on page 215 of that report. About nine per cent. of the total number of feet laid at that time consisted of the spiral riveted pipe; about 72 per cent. was the kalamined tube; about 19 per cent. the wrought-iron pipe, made by the Risdon iron works.

Q. You may state whether or not the material used in the
384 construction of the dam and the pipe line was proper and suitable material to have been used in construction work of that kind.

A. It was my aim and that of the company to put nothing in the works but the very best material in every part; not only in the construction of the dam, the best of cement that could be obtained was used and very liberally used; the rock was selected, the very best that could be had in the neighborhood, and it was very carefully prepared and every stone well cleaned and washed and scrubbed by hand, and the best of care that could possibly be taken throughout the work was taken to make it first-class in every respect; and so with the valves and with the pipes, the best of materials that could be obtained were obtained.

Q. Was any part of the material used in either the dam or the pipe line found to be defective subsequently?

A. Yes, sir; the spiral pipe was found to be defective. In the course of transportation across the continent—it came across in very hot weather—it had lost a portion of its coating and became thoroughly shaken up, and it would have been desirable to have redipped it and possibly, if it had been redipped at the time, it would have proven to be, as it has elsewhere, a serviceable pipe.

Q. Were you familiar with the quality of that class of pipe at that time?

A. I had never seen any of it except at the shop. I visited the shop some years previously and saw the process of making the pipe.

Q. Were you able to discover the defective quality of the pipe before it was actually used?

A. No, sir; it didn't show any manifestation of weakness.

385 Q. How did you ascertain what the defective quality of it was or how it became defective?

A. After the pressure was turned on it proved to be leaky in a great many places, and, although the leaks originally were chiefly at the joints, it continued to leak in the spiral seams.

Q. Can you state what amount that part of the pipe cost the company?

A. I thought I had a memorandum of the cost of each quality of pipe specified in this paper, but I don't find it at this moment.

Q. Here is a paper that may refresh your recollection on the subject.

Mr. GIBSON: What is the witness referring to now?

Mr. WORKS: It is the appendix to one of these reports.

WITNESS: I had this data at the time, but I didn't incorporate it evidently in the paper; but from the data furnished me in this report I find that the total cost of that class of pipe was \$34,599.92.

Q. You may state whether, if the defective quality of that pipe had been known at the time, it would have been used in the system.

A. Most certainly not. It was a subject of great annoyance to every one concerned to find, after taking so much pains with the entire system, that there was a link of defective pipe in it.

Q. Was the defect such as could be easily detected without the actual use of the pipe and subjecting the pipe to pressure?

A. Not without putting each section of the pipe in a testing machine; and as that is not customary and we had no testing machine, it was not done. The pipe was supposed to be tested before it

386 started, and it was furnished with a guarantee that it had been tested. I think the pressure to which that guarantee of test was made was something over 300 pounds to the square inch.

Q. What was the actual test to which the pipe was subjected after it was put into use?

A. The maximum pressure upon any portion of it was less than 100 pounds. I don't recollect what the maximum was, but it was between 50 and 100 pounds, I think.

Q. With reference to the balance of the material put into the pipe line, aside from this spiral pipe, you may state whether or not the quality of the balance of it was good.

A. I consider the pipe today to be without any superior in the State in irrigation works or in water works generally.

Q. Was the kind of pipe used—that is, the class of pipe—such as is generally and ordinarily used in that kind of work?

A. Yes, sir. The wrought-iron pipe was precisely of that class and type and character which was used in the city of San Francisco and had been used for some twenty years. Before recommending that sort of pipe I visited San Francisco and renewed the information that I had previously obtained about the durable quality of this class of pipe up there and found that they had taken out some pipe which had been in the ground for twenty years and was in perfect condition. The lap-welded kalamined tube is admitted to be a superior pipe for use anywhere in the United States. It is used in the Eastern States in competition with cast-iron pipe and frequently preferred, even though the price is somewhat greater. It is preferred in the sections where natural gas is used. It will

387 stand a much higher pressure than any other pipe which can be obtained, and can be kept tight. It is a pipe that is prepared with unusual care, the thickness being very much greater than would be required for the static pressure it ordinarily has to stand, and it is welded so carefully that the seam cannot be discovered, and in addition to that it is carefully cleaned with acids and dipped in a bath of molten metals which are generally non-corrosive and is prepared for withstanding all the ordinary acids or

alkali-s that are found in most soils. There are some elements in the soils of this country which seem to be particularly severe upon all pipes.

Q. What do you mean by "this country"?

A. I mean southern California.

Q. Is that true in this section, where this system was put in?

A. That is true through this section; yes.

Q. Are you able to state what that destructive quality of the soil is?

A. I have never made an analysis of the soil or had it made to discover what that was. I was more interested in the effect than in the cause or the analysis of the cause.

Q. I wish you would state whether, in your judgment, the system constructed for the supply of that section, including the dam, reservoir, and pipe lines—the entire system—was necessary and proper to be constructed for supplying the territory sought to be covered by the system supplied with water.

A. It was not only necessary, but it was indispensable. There was no other means of obtaining an adequate supply for that region.

Q. You may state whether, in your judgment, the amount of money expended in the construction of the system was proper to have been expended for that purpose—proper and reasonable.

A. The expenditure was entirely proper and as reasonable
388 as the markets of the time would permit. Labor was high at that time, and materials generally were high; but at the time of the construction the work could not have been constructed for less money and with the same degree of stability. The work was done by the day, and the best of skilled foremen obtainable were in charge of the different departments, and I was in immediate charge myself, and endeavored to keep a careful lookout in all directions to prevent possible extravagance or waste and dishonesty or leaks of kindred character, and I am sure that the administration was as thorough and as careful as could have been obtained.

Q. Were you then and are you now familiar with the source of water supply for the Sweetwater river?

A. Yes, sir.

Q. I wish you would state as fully as you can what the source or sources were.

A. The only source of supply is that of an intermittent stream called the Sweetwater river, which heads in the Cuyamaca mountains, and at times is a raging torrent, and at other times is a dry brook. The catchment of the water is that of the winter storms. There are no summer rains of any moment that produce a run-off which reaches the reservoir.

Q. Is there any living stream emptying into the reservoir?

A. The Sweetwater is not what would be considered a living stream. It is dry part of the year, and consequently is not a living stream.

Q. About how much of the year is there an entire lack of flow into the reservoir from the Sweetwater of an average season?

A. I think from four to six months; sometimes longer.

389 Q. Is there likely to be any flow at all into the reservoir during what is known in this section of country as the irrigation season?

A. Not of any moment; no, sir.

Q. What is the capacity of the reservoir in inches?

A. What do you refer to, inches of perpetual flow or inches of flow during the irrigation season?

Q. Inches of perpetual flow.

A. Our computation of the capacity of the reservoir has been made in cubic feet and gallons, and I don't recollect what it may be in inches at the moment. (Makes computation.) About 1,240 inches, perpetual flow, miners' inches, under a four-inch pressure.

Q. What knowledge have you had, if any, of the actual experience of the company with reference to the quantity of water used and the necessity for holding over a part of the water supply from one season to another?

A. I have examined the records from time to time in the past, and was interested to see the quantity of water that they were using as compared with the prognostication that I had made as to what ought to be sufficient, and have been surprised to find that the use has exceeded what I supposed would have been sufficient. The amount required thus far appears to have been somewhat over the acre foot during the irrigation season. An acre foot is about 312,000 gallons per acre. And my recollection of the records is that the use has exceeded that considerably.

Q. My question was as to what you would regard as a safe amount of water to hold over from one year to another in the reservoir, considering the danger of dry years.

A. I have always felt that—I have been sure it was necessary to hold over from forty to fifty per cent. of the total reservoir capacity for emergencies, and the record of the floods of 1891-'2, I think, and also of 1893-'4—1890-'91 was the drier year—1890-'91 and 1893-'4 proved very conclusively that that reserve was none too great. 1891-'2 was the dry year, I find, not 1890-'1. In 1891-'2 the run-off, as measured at the dam, was 267,000,000 cubic feet, and in 1893-'4 it was only 60,000,000 cubic feet.

Q. Your paper read before the American Society of Civil Engineers has been quoted from here to the effect that, in your opinion, the reservoir and the supply of water that might be stored there would be able to furnish 20,000 acres of land with water sufficient for irrigation purposes. Have you had any reason since preparing that paper to modify your conclusion with reference to that matter, as a result of the actual experience of the company?

A. I have a great many reasons for modifying that opinion. At the time that that report was made or that paper was prepared the information obtainable as to the run-off of the streams of San Diego county, as well as the water required in irrigation, was extremely meager. There was a general impression that this country did not

require irrigation very much, and the real-estate men—we all had something to do with real estate at that time—were joined in that impression and carried it alone. Experience in actual measurement of the streams had not been had at that time. There had been no experience in San Diego county in irrigation to any great extent except with windmills, and when a man pumps water with a windmill or with a steam pump he uses a very small quantity, and the data based upon observations of extremely small use like
391 that are apt to be deceiving. At any rate, the conclusions which I have drawn in that paper were prepared during the height of the boom and with insufficient data upon which to base an opinion as to the quantity of water required, and particularly as to the quantity of water that would be likely to be yielded by the water-sheds of this region. The percentages which observation had given as to the run-off from the rainfall for other localities do not appear to apply here at all, and the actual results of measurements of the streams afford entirely different conclusions from those which were supposed reliable at that time.

Q. Well, judging from the knowledge you have since acquired, and particularly from the actual experience of this company, what is your judgment now as to what amount of land the company can safely obligate itself to furnish with water from that system?

A. I don't think that the duty of the reservoir could be counted upon in excess of one-third of the estimate given in that paper.

Q. Do you think that is a pretty liberal estimate, one third?

A. I think that would be a liberal estimate. As the orchards grow older they seem to require more water. We even yet have not had the experience of the requirements of an orchard of twenty years of age; and it is the experience in other parts of southern California that orchards require more and more water as they grow older, as the fruitage is greater and the amount of foliage is greater.

Q. What is the elevation of the dam?

A. The top of the dam is at an elevation of 215 feet above sea level.

Q. And the connection of the pipe line with the dam, what is the elevation of that?

392 A. The lowest outlet is 70 feet below that, 145 feet above sea level.

Q. At what elevation can water be safely and economically supplied from the dam for irrigation purposes?

A. (Witness consults paper.) When the lower half of the reservoir capacity comes to be used it will be necessary to draw the reservoir down to an elevation of 155 or 160 feet. I do not think it would be wise or proper to attempt to supply lands above a grade line starting at an elevation of 160 feet and terminating at such point as would be required for the delivery of the water.

Q. What would that probably be?

A. About 140 feet.

Q. Do you know what the elevation of what is known as the pipe line No. 2 from the dam down its entire length is?

A. Pipe line No. 2 is the new pipe line recently finished?

Q. Yes.

A. My recollection of that is that it leaves the dam at an elevation of 165 or 170 feet and follows along the north side of the valley of the Sweetwater as near a hydraulic grade line of five feet per mile as possible, dipping occasionally to the level of the valley, or nearly so, and rising to the hydraulic grade line again and terminating in National City at an elevation of 140 feet or thereabouts.

Q. Do you think it would be safe or advisable for the company to undertake to deliver water for irrigation above the elevation of that pipe line No. 2?

A. Not with that pipe line. At the time the pipe system was designed it was my intention, my recommendation, that a
393 higher line be built; and for that purpose I put in foundations for pumps at the dam to be operated by water power and lift water to the top of the mesa, where the higher line was to be located.

Q. That could only be done by adding to the system and incurring additional expense?

A. Yes, sir.

Q. But I am speaking of the system as it is at present.

A. The system as it is would find difficulty in supplying lands very much higher than 140 or 150 feet or above the hydraulic grade line of this second pipe.

Q. Suppose that the quantity of land below that 140-foot contour line is greater than the actual duty of the reservoir, would it be policy then to attempt to deliver water above that line?

A. It would not be policy to attempt to deliver water above that line; no, sir.

Q. Are you able to state from your knowledge and observation what quantity of water in the Sweetwater reservoir is lost by evaporation?

A. I made observations of the loss by evaporation while I was with the company for a number of years. (Consults paper.) In the year 1889 I found the loss to be $57\frac{5}{10}$ inches of depth. This was measured in an evaporating pan three feet square, about $2\frac{1}{2}$ ft. deep, floating in the lake. In the year 1890, I think it was, we obtained from the United States Signal Services two Piche evaporimeters, which were observed in connection with the pans. In 1890 the evaporation was found about 59 inches; in 1891, $58\frac{1}{4}$ inches; in 1892, $59\frac{1}{2}$ inches; in 1893, after the pans were discontinued, the evaporimeters were only taken, and show less results, $50\frac{8}{10}$ inches, and in 1894, $45\frac{7}{10}$ inches.

394 Q. Can you tell us about what percentage that would be?

A. The percentage of loss from the reservoir would depend upon the state of water in the reservoir. There being a constant quantity taken out by evaporation, the percentage of the volume of the water in the reservoir would depend upon the stage of water in the reservoir and the area of the reservoir exposed. (Makes computation.) That will range from twenty to forty per cent., according to the height of the water in the reservoir. At the full reservoir the percentage would be of smaller amount.

Q. You have spoken of the quality of the soil here as being detri-

mental to the pipes. I wish you would explain, or state rather, for what length of time pipes such as are used in this system may reasonably be expected to last in the kind of soil in which it is placed.

A. They ought to last from ten to twenty years.

Q. What would be a fair average for the whole system?

A. If I were to estimate it, I should say fifteen years.

Cross-examination by Mr. GIBSON:

Q. What you say of the life of a pipe and of the average of fifteen years, is that on the assumption that every portion of it passes through soil that is injurious to it in the manner you have specified heretofore?

A. No, sir; but the average as it would be encountered in laying a pipe system through different soils.

Q. Then some portions of it might last many years longer and be in as good condition as the pipe was that you saw in San Francisco after it had been in the ground twenty years, and yet in other portions where there are injurious ingredients in the soil that would act upon the pipe to its detriment; it might wear out sooner; is that it?

395 A. Yes, sir; there are some soils where a pipe line may not last more than three or four years. I think some of the pipe has been taken out and replaced within two or three years.

Q. That is only in small sections?

A. Yes, sir; comparatively small sections. It would be very discouraging if the entire system should show that weakness.

Q. Then, you do not wish to be understood as saying that the injurious ingredients found in the soil of California extend throughout all the soil, but only in small sections in different localities; is that the idea?

A. It is to be found more or less active in all soils, and particularly in all the mesa soils. I think in the sandy bottoms, where the salts and alkalis are more easily washed out, there is less deleterious action upon pipes than anywhere else; but on the mesas we encounter elements that are very severe upon iron, and also upon the asphalt coating. I have noticed a kind of white clay that seems to take the life out of asphalt in a very short time.

Q. I believe you have already said that these injurious ingredients, whatever they may be, are only found along different sections of this particular pipe line, the pipe line in question?

A. The injurious elements seem to be quite generally distributed over the country, but those which are most active and which would destroy a pipe within two or three or four years are not so common as other elements that are active more slowly. I mean to say that it is not general to find a destructive action that will destroy a pipe within two or three years, but that it does take place occasionally in all sections of this country.

396 Q. When you say that the loss by evaporation is from twenty to forty per cent., according to the stage of water in the reservoir, do you mean that of the whole mass of water?

A. I mean the percentage of the water remaining in the reservoir at that time.

Q. That is to say, if at a certain stage there would be a loss of 40 per cent., there would be but 60 per cent. remaining of the original quantity?

A. Yes, sir. Let me explain that. I mean to say this: If at the elevation of the full reservoir a certain percentage of loss was observed it would be applied to the total capacity of the reservoir at that point; but the percentage which I referred to, the higher percentage of forty per cent., was applicable not to the entire volume of the capacity of the reservoir, but to the capacity at that elevation, at the lower elevation.

Q. Then, as you reach the lower points or contours the percentage increases?

A. The percentage increases; yes, sir.

Q. Referring to the cost of the structures which you have mentioned, namely, the dam and pipe line No. 1, you say that material and labor were high at the time they were constructed, and you have referred to your report. Do you not also say, on page 214, in that connection that these conditions increased the cost of the work twenty to twenty-five per cent. above the normal?

A. Yes, sir; those conditions were the high state of the labor market and the high prices prevailing for materials generally. The cost of cement at that time was higher than it has ever been since that time, and I think that is true of all the materials entering into the construction of the pipes.

Q. What could the dam and pipe line be constructed for—in other words, duplicated for—in February last?

Mr. WORKS: Objected to as immaterial, irrelevant, and incompetent.

A. I think that the entire system could be duplicated for certainly as much less as the percentages I have named on page 214, and possibly below that.

Q. How much below that?

A. Well, it is difficult to compute.

Q. We don't expect you to make an exact computation, but from your knowledge of the cost of materials, and also the cost of labor—

Mr. WORKS: Let it be understood that all this line of examination is objected to on the same grounds as before stated.

Mr. GIBSON: All right.

Q. —and the facilities for obtaining both.

A. I think I could build the dam for at least seventy per cent. of the original cost. You speak of the date of February last?

Q. Yes, sir.

A. In February the cost of pipe was probably considerably less than it is now, and I should judge that about the same percentage might be applied to that—that is, you might say that the pipe system could be duplicated for 65 or 70 per cent. of the original cost.

Q. Do you remember the number of gauge, wire gauge, that the spiral pipe was constructed of?

A. No; I do not. I think it was about No. 16; some of it, I think, was No. 14, and possibly higher. I don't know but the 24-inch was No. 12.

398 Q. Was not most of it from 14 to 16?

A. The greater portion of it was more than 24 inches in diameter, and I think that is true for the 6, 8, and 12 inch pipe, which constitutes the larger portion of the spiral pipe, but I think the 24-inch pipe was No. 12. That is my recollection of it. However, I am not positive as to that, but that is my impression.

Q. Would you not as an engineer say that from 14 to 16 inch gauge is too light for pipe constructed in that manner and for the service expected of it?

A. Not for pipe constructed in that manner. Spiral riveted pipe has a capacity for standing very high pressure. The spiral twist that it has, the turn, seems to increase its strength for the reason that it has the lines of lamination more nearly in the direction opposing the pressure. The theory of spiral riveted pipe is all right. The sample we obtained of it was an unfortunate one. With ordinary straight riveted pipe the amount that is cut away by the punching of the rivet holes reduces the strength of it some forty per cent. or more, but that is not the case with the spiral riveted pipe—to so great a degree, at least.

Q. Do you not say in the paper that you referred to in your examination-in-chief—I refer to page 215, at the bottom part of the page: “The introduction of the spiral pipe into the system was unfortunate, as it does not stand the test of transportation across the continent and will have to be taken up and specially treated to make it water-tight. It will answer very well for subirrigation if it could be properly controlled, but as it is laid in streets and avenues, that system is not desirable or conducive to comfort in traveling.” Did you not so state?

A. I recollect those were my sentiments then, and now.

399 Q. If the transportation of it across the continent affected the protective covering, why was it put down in trenches and covered over in that condition?

A. Because that fact was not discovered until after it was laid and tested, and could not have been.

Q. Do you mean to say that the inspection of the pipe would not have discovered its weakness in that regard?

A. Not at all; no, sir.

Q. How did you reach the conclusion that it was subjected to a high degree of heat in being transported across the continent?

A. From my general knowledge of the condition of the weather at that time.

Q. You knew that before the pipe went into the ground?

A. Yes, sir.

Q. And yet at that time you didn't think that it affected the character of the pipe or the integrity of the pipe?

A. No; some of the coating had melted so as to drip as the pipe

lay on its side—drip off it a little bit. But the agent of the company, who was present and took the contract for laying the pipe, did not seem to think that that affected its condition at all and advised laying it and did lay it.

Q. It was laid under your supervision?

A. Yes, sir.

Q. And if you had objected other pipe would have been substituted?

A. I think not. There was no possibility of substituting other pipe. That pipe had been purchased for the purpose and was supposed to be as good as all the rest of it, and there was no indication by appearances or by general report or for any other reason
400 that the pipe was not first class. The dripping of the coating was not such as to indicate any probability of the pipe leaking when it was put under pressure, and I don't think that any one could have looked at that pipe at that time and have said positively that it ought to have a fresh coating of asphalt.

Q. Would you recommend now the laying of such pipe for the purposes for which the spiral pipe was laid?

A. I would not recommend the spiral pipe under any circumstances for any purpose whatever.

Q. Why?

A. Because the one experience of it is sufficient. I don't want any more.

Q. You said it had served well elsewhere?

A. That was the reputation that it had and the information that I could obtain of it. I had had no personal experience with it.

Q. Had it been used on this coast anywhere?

A. It had been used in one place—at Hesperia, California.

Q. That is out on the desert?

A. Yes, sir.

Q. Mojave desert?

A. Yes, sir; I didn't go there to inspect the pipe, but had a talk with Mr. Whitney in regard to it before the pipe was ordered; and when Col. Dickinson went to Boston to see about the purchase of the pipe and about the extension of the dam I recommended that he visit the works. I had been to the works myself, and I recommended that he go there and take a look at it. He did so, and before I knew anything further of it he made the order for the pipe.

401 Mr. WORKS: How was Col. Dickinson connected with the company then?

WITNESS: Col. Dickinson was general manager of the company.

Q. You recommended the purchase of the pipe; it was purchased on your recommendation, was it not?

A. No, sir; I didn't recommend the purchase of the pipe. I recommended that he visit the works and investigate the pipe.

Q. Didn't you make any representations to him as to its quality and character?

A. I simply told him that I had been to the works and seen the

pipe. It seemed to me to be rather a novel pipe, and while he was east he would do well to go there and look at it. If I had supposed that the pipe was to be ordered on that visit by him at that time I should have preferred specifications and a list of the different sizes, where we could best use different classes of pipe, if there was to be more than one class of pipe used; but all the pipe was purchased at that time entirely without my knowledge. When the pipe came we laid it and put it into the places where I could use it to the best advantage.

Q. What are the functions of a consulting engineer?

A. The functions of a consulting engineer or of an advisory nature.

Q. To advise as to designs?

A. Yes, sir.

Q. And the construction of works, including the material and preparation of the same?

A. Yes, sir; preparation of specifications, preparation of plans frequently, and the advising of those in charge of the works as to methods and policies, and so forth.

Q. And you occupied that relation with regard to the San
402 Diego Land and Town Company, did you not?

A. Subsequent to the completion of the works; yes, sir.

Q. Not before?

A. Not before.

Q. What was your connection with the company and your duties prior to that time?

A. I was placed in charge of the construction of the water works without any special assignment of duties or without title. I was the only engineer of the company, or the chief engineer.

Q. Do you mean to be understood as saying that as chief engineer you received whatever material was brought to you or furnished to you for the construction of the works, and laid it without special regard to its fitness and durability?

A. Not at all. I only used such materials as were fit and suitable, in my judgment; but when the pipe was ordered it was all laid, whatever came. I regarded it as all fit and suitable. It was carefully inspected and received—considered to be first-class in every respect.

Q. How many acres was the pipe line No. 1 designed to supply?

A. Pipe line No. 1 was projected for the supply of Chula Vista and National City. It was considered to be sufficient for the area of land within those limits, or nearly so, although there was considered in the plan another pipe line on the other side of the river to be laid whenever required.

Q. How many acres was pipe line No. 1 designed to irrigate?

A. It was designed to be used up to its full capacity in irrigation and supplemented by another pipe whenever needed. It was not designed for any special number of acres, because the duty of water, as I say, was not determined at that time.

403 Q. How many inches of water would the pipe line deliver?

A. If I remember rightly, the capacity of the pipe to Chula Vista was about 850 inches.

Q. And how much to National City?

A. The 18-inch pipe leading to National City has a capacity of between 250 and 300 inches.

Q. Then the pipe line had a capacity of from 1,150 to 1,200 inches?

A. No, sir; I don't mean to say that.

Q. I understand that the same pipe line supplies both localities?

A. Yes, sir. 850 inches is the capacity of the line to Chula Vista, and the National City pipe receives its water from the Chula Vista pipe.

Q. Well, how much water would the 30-inch pipe deliver at the point where it connects with the distributing pipes of National City and Chula Vista?

A. It is so long since I have thought of this system that I don't recollect the figures. I designed that 30-inch pipe to carry the average capacity of the reservoir.

Q. 1,200 inches?

A. 1,200 inches; yes, sir; to deliver 1,200 inches to an elevation of 90 feet in Chula Vista.

Q. And at what elevation in National City?

A. The pipes are laid to elevations in National City somewhat higher than that, I think.

Q. Does not the height of the elevation affect the capacity of the pipe—I mean the elevation of the point of discharge?

A. Naturally; yes, sir.

404 Q. Do you remember the 12-inch Ex-Mission pipe going up there on the north of National City on the topographical map?

A. Yes, sir.

Q. What is the capacity of that pipe?

A. I don't remember.

Q. Could you tell us without taking up too much time?

A. I think I had better make a note of it and compute it and bring it in at another time.

Witness subsequently brought in the following statement:

"If the 12-inch Ex-Mission pipe were cut off at the north line of the National ranch its capacity would be about 200 miner's inches, but as the lands irrigated are chiefly more than 100 feet higher than that point, the capacity of delivery to those lands would be less than 100 inches.

JAS. D. SCHUYLER."

"P. S.—In my testimony (see page 303) I stated that one acre foot was about 312,000 gallons. This I wish to correct to about 326,000 gallons, or exactly 325,851 gallons.

J. D. SCHUYLER."

Q. The capacity of the reservoir, the total capacity, is 1,240 inches, perpetual flow. By that you mean for 365 days in the year?

A. Yes, sir; that is, without counting loss by evaporation.

Q. That is the total capacity, I understand, without making any deduction for loss by evaporation or otherwise?

A. Yes, sir.

Q. Now when, say, the irrigation extends over a period of from 150 to 200 days—you have it 150, I think, in your report, and it has been heretofore testified that the irrigation season covers a period of 200 days—and the consumer is furnished, say, with 10 405 inches of water, what period does that cover, the irrigation season or the 365 days?

A. Water is not furnished to consumers by the inch.

Mr. WORKS: Objected to on the ground that it is immaterial, irrelevant, and incompetent, and that it appears by the evidence that the complainant is not furnishing water to consumers by the inch.

Q. Assuming that water is furnished by the inch?

Mr. WORKS: It is objected to as immaterial, irrelevant, and incompetent, and on the further ground that the questions asks the witness to determine a question of law as to what the consumer is entitled to receive under his contract for water.

A. That would be entirely a matter of agreement between the irrigator and the company or the person who furnished the water. If the irrigator agreed to take his water in perpetual flow it would be perpetual flow; if he agreed to take it and pay for it only during the irrigating season, that would be the understanding.

Q. It would be only $\frac{3}{4}$ ths of that quantity?

A. If he so agreed.

Q. But supposing there was no agreement; supposing they agreed to furnish for irrigation and sell water on the basis of one inch to so many acres—say one inch to seven acres?

Mr. WORKS: Same objection.

A. I can't conceive how a man could take water without any agreement preliminary to his taking it.

Q. Assuming that there is no agreement, that the consumer has, say, seven acres of land to irrigate, and the company is selling or furnishing water on the basis of one inch to seven acres, and it would require an inch of water to irrigate his land, and he 406 demands of the company in the ordinary manner that consumers demand their water from the San Diego Land and Town Company; for what period would the company furnish him that one inch of water for his seven acres for 200 days or 365 days?

Mr. WORKS: Same objection, and the additional objection that the assumption contained in the question is not warranted by any evidence yet taken.

A. For whatever period the consumer would demand it, I presume, if there were no agreement. He would be apt, however, to want to prorate, and if he were only entitled by custom or by un-

derstanding or by an agreement to an inch to seven acres, perpetual flow, he would naturally want to prorate that and concentrate it to a shorter time, and, instead of taking water at that rate in the winter time, to take water at a greater rate or double that rate during the ordinary irrigation season.

Q. You were connected with the company while it was furnishing water for irrigation, were you not?

A. Yes, sir.

Q. Upon what basis did it furnish water for irrigation?

A. There was no limitation for a number of years as to the amount of water an irrigator should use; but it was understood that for the time being, until the country was more completely settled up, that every one should have all the water that they thought was necessary; but after a little regulations were adopted limiting the volume of supply to about one acre foot.

Q. When a consumer received water on that basis, of one acre foot, did he receive the water necessary to cover every foot of his land one foot deep at least once a year all at one time, or was it distributed throughout the whole year or confined to the
407 irrigation season of about 200 days?

A. That was generally at the irrigator's option, except that it was naturally restricted by the size of the pipe that he received his water through. It would be quite impossible for him to take all of his water at one time, in one day, or in one week; nor would his ground require it. There would be a reasonable restriction in that regard, even if he should want to go to excess. It is customary to distribute and prorate the distribution of water throughout the ordinary irrigating season.

Q. But supposing the company is under obligations to supply a consumer, say, one inch of water for seven acres of land, or an acre foot—put it on that basis—for seven acres, and his crop should be such that during the ordinary irrigation season he would not require all his water, but that by the use of water during the irrigation season by others the supply in the reservoir should be exhausted, and he should demand that his water should flow continuously, not having pipe large enough to take it in any other manner, how would he get his supply?

A. That is a hypothetical case that I could not very well conceive of, because I don't know of any crops grown in this country that are not irrigated during the ordinary irrigation season and that require irrigation out of the irrigation season.

Q. Is it not a fact that citrus trees are irrigated in the fall, in November and December, of dry years?

A. That is a fact; yes, sir; sometimes.

Q. And also alfalfa?

A. I don't know of alfalfa being irrigated in the winter season.

Q. And in dry seasons sometimes a rain does not occur in this country to amount to anything until about Christmas. Is not that so?

408 A. Yes; that is so.

Q. And supposing the summer is dry, as it ordinarily is,

would he not require to irrigate his alfalfa crop—would not the grower of alfalfa be required to irrigate it until the winter rain should commence?

A. He might require water in the rainy season to some extent, but he would consume the greater portion of his water in the irrigating season.

Q. But still he would require some of it beyond that?

A. It is quite possible that he would require some of it beyond that, but it would be to such a small extent generally that if his pipe were proportioned to take care of his crop in the irrigating season he would certainly get his water supply in the rainy season.

Q. But don't you know that where alfalfa is grown on mesa lands—dry lands—that it requires more irrigation and covering a longer period than where it is grown upon moist bottom land?

A. I don't know that it requires irrigation for a longer period.

Q. What I mean to say is, extending over a longer period.

A. Not necessarily; no, sir. Alfalfa is irrigated every time it is cut, wherever it is located. That is the custom in this country.

Q. But does it not require more water on dry uplands than it does in bottom lands?

A. I don't know that it does.

Q. And will it not die out sooner on upper lands without water during the dry falls, such as we have in this country, than it will on bottom lands?

A. Yes. If the roots don't reach to permanent water and
409 it is not irrigated, alfalfa will die in any situation.

Q. Is not permanent water from 30 to 100 feet below the surface of the soil on the mesas?

A. Yes, sir; usually.

Q. And in the bottom lands it is seldom over ten feet from the surface?

A. Yes, sir.

Q. And is usually within a foot or two of the surface; is not that so?

A. Bottom lands are usually well supplied with subsurface waters, which help out the life of alfalfa, and frequently there are moist lands where alfalfa requires no irrigation whatever.

Q. Now, before you were called to assume the construction of the Sweetwater reservoir or dam you were employed, you say, in the State engineering department?

A. Yes, sir.

Q. And in the discharge of the duties of that department you had to examine various sections of the State and report upon the water supply and gather and report statistics relating to irrigation?

A. That is true.

Q. Were there not large sections under irrigation in southern California and had been for many years prior to the commencement of the construction of the Sweetwater reservoir system?

A. Yes, sir.

Q. Such sections were found in Los Angeles and San Bernardino

counties and what is now Riverside county, and also what is now Orange county, formerly a portion of Los Angeles county, and also in central and northern portions of San Diego county?

A. I examined all those sections—yes, sir. There was very
410 little irrigation in any part of San Diego county at that time.

Q. There were some portions that were irrigated and had been for a great many years, were there not?

A. There was very scanty irrigation in San Diego county.

Q. Taking it as compared with irrigation in other counties, it was small, but yet there were considerable tracts in different places that were under irrigation?

A. The only tracts that I call to mind were the bottom lands of the Santa Margarita ranch, irrigated from the Temecula creek.

Q. Were there not tracts in Poway valley, and also along the San Luis Rey river?

A. There were a few tracts along the San Luis Rey river. I don't know of anything in Poway that was irrigated. There were irrigations scattered throughout the county from irrigation supplied by windmills.

Q. Is there not one of the oldest irrigation ditches in the county in the Poway valley taking water from the Poway or Santa Ysabel river?

A. Those are two distinct streams.

Q. What is the name of that river there?

A. Do you refer to the Penasquitas or the San Pasqual?

Q. San Pasqual—that is what I am trying to think of instead of the Poway.

A. There were small irrigations in San Pasqual, but quite insignificant.

Q. But yet there was enough to show what could be done with irrigation and how much water was necessary to produce certain kinds of crops?

A. None of those examples that you have cited were at all
411 parallel to the situation that we had to confront in the preparation of plans for irrigating the mesas of Chula Vista and National City.

Q. Well, Riverside was a large irrigated section at that time, was it not, and consisting wholly of mesa lands similar to the lands of National City?

A. Yes, sir; but the irrigation at Riverside was from a flowing stream, and at the outset, when I made my examination there, it was the general impression that they were using an extravagant quantity of water. They have since been increasing, however, their consumption of water, and are now using something like an inch to four acres for the irrigation of their trees.

Q. Didn't they irrigate there for years and don't many of them yet irrigate upon the basis of one inch to seven acres?

A. They may have started to irrigate their young orchards on that basis, but the records of the Riverside Water Company, the measurements of water taken since they have started to sell water,

show an average delivery of about an inch to four acres—four and two-tenths acres.

Q. Do you affirm that of all the years that they have been irrigating?

A. It was somewhat less than that at the outset, when their orchards were young.

Q. Is it not also a fact that large sections are irrigated from the Bear Valley system, on the basis of one inch to seven acres, in the San Bernardino valley?

A. My information about the irrigation of the Bear valley is that their average distribution is an inch to four acres. All of their

class A certificates are on that basis, and in the Alessandro
412 district they furnish water on that basis. When they went into the Alessandro district and laid out what was to be a model fruit colony, they provided a supply of water of an inch to four acres, based on the experience of past years.

Q. Is not all the water that is supplied to irrigators of Riverside owned by the irrigators themselves?

Mr. WORKS: Objected to as immaterial, irrelevant, and incompetent.

Mr. GIBSON: It has a tendency to show the manner of use.

A. I really don't know whether the irrigators in Riverside are stockholders in the Riverside Water Company or not necessarily. I know that the water company sell water, but whether the irrigators are stockholders in that company I am not aware.

Q. Don't you know that the territory of Riverside when you examined it was supplied by the Riverside Land and Irrigating Company, organized upon about the same basis as the San Diego Land and Town Company, and that they furnished water to consumers on the basis of one inch to ten acres, and that subsequently the Riverside Canal Company was formed and acquired the water rights of the Riverside Land and Irrigating Company, but remained practically the same company—it was under the control of the former company—and that thereafter and about ten years ago the people organized a company and acquired the water rights, and that only land-owners and stockholders in the company have the right to use the water? If the engineer's report is here, we don't object to your referring to it to refresh your memory. I mean the State engineer's report.

A. There is a whole lot of it here.

Q. Then you can look it up this evening to refresh your mind.

413 A. I think I had better look that up and not detain you now.

Q. When was it first discovered that it would be necessary to carry over from forty to fifty per cent. of the total capacity of the reservoir for emergencies?

A. I think it was surmised at the outset and partially confirmed in 1891-'2 and very positively demonstrated in 1893-'4.

Q. And the pipe system was constructed on the basis of supplying the 1,240 inches per annum, was it?

A. The pipe system was not constructed with any special reference to any particular quantity, except that the main pipe was, as I recollect it now, computed to deliver the full flow of the capacity of the reservoir to an elevation of 90 feet in Chula Vista. The remaining pipe system was proportioned to supply the lands where it was laid what was supposed to be sufficient for their supply, with provision for additional pipes to be laid; crosses were inserted in almost all the streets in National City at least, and, I think, in Chula Vista every street was crossed for the attachment of cross-mains for the future.

Q. Look at this; that is class A certificate, Bear valley. (Hands witness paper.) After reading class A certificate issued by the Bear Valley Land and Water Company, I will ask you upon what basis were those certificates issued?

Mr. WORKS: Objected to as immaterial, irrelevant, and incompetent, and the document shown to the witness does not appear to be what is stated in the question.

Mr. GIBSON: It is a copy of the certificate on file in the United States court.

A. I don't recognize it. I never have seen any of those certificates. I don't know.

414 Q. It is stated in what purports to be a certificate that it is one inch to seven acres instead of one inch to four acres, is it not?

A. Yes, sir.

Q. I think you will find some statement in that book of engineering there; I refer to the State engineer's report. Now, might you not also be mistaken as to the amount provided for the irrigation of land in the Alessandro district?

A. I don't think I am mistaken; no, sir.

Q. Is it not true, Mr. Schuyler, and will you not so state from your experience as an engineer and from your knowledge of the respective localities that I am about to refer to, that it requires more water to irrigate an acre of land devoted to the growth of citrus fruits and vines in the vicinity of Riverside and Alessandro, from 60 to 70 miles from the coast, than it does at the National ranch, abutting on the coast?

A. I think that remains to be demonstrated by further experience. Having made an unfortunate prognostication about the use of water at one time, I am a little bit timid about giving an opinion in regard to the consumption required.

Q. Is it not recognized, then, as a fact by others who are experienced in irrigation that it requires more water inland, in the inland counties, upon elevated mesas, than it does at or near the coast?

A. Judging by the experience that has been had so far at Chula Vista, I don't think we are warranted in assuming that there is a very great difference in the requirement of water in Chula Vista and in Riverside.

Q. Is it not generally regarded as being a fact that more
415 water is required at Riverside and vicinity than at or near
the coast?

A. There may be assumptions of that sort that are entirely erroneous. Experience is likely to demonstrate the fallacy of any such assumption, and, as I say, the indications are that from experience so far in Chula Vista such demonstration will be made. When the orchards in Chula Vista have the same age as those in Riverside I don't think that they will take appreciably less water.

Q. Take orchards of similar age. Is it not a fact that it is generally understood and regarded by those experienced in irrigation that it requires more water in the interior than at the coast? No matter what your private opinion may be, is not that the general opinion?

Mr. WORKS: Objected to as immaterial, irrelevant and incompetent, and as hearsay.

A. I have heard that opinion expressed. I don't know that we are justified, however, in giving any weight to anything but actual experience, especially when experience leads in the direction of the contrary opinion.

Q. Has not that been the prevailing and general understanding for a number of years last past?

Mr. WORKS: Same objection.

A. I have no doubt that is the general opinion. It is also the general opinion that the evaporation of water from lake surfaces is very much less near the coast than further back in the interior, but our experience does not seem to carry that out.

Q. That is a matter that is known to fewer people than the practice of irrigation is known to, is it not?

A. It may be, but it is directly connected with the same
416 subject and affected by the same general phenomena.

Q. Did you not find when you assumed charge of the construction of the Sweetwater dam that the Sweetwater river had many, if not all, of the characteristics that appertain to rivers in southern California, say in Los Angeles, San Bernardino, and Riverside counties and San Diego county?

A. The Sweetwater river bears no resemblance whatever to the principal rivers of Los Angeles and San Bernardino counties.

Q. Is there any river to your knowledge south of the Tehachipi range that runs a continuous stream from the head to its mouth during the entire year?

A. No; I don't know of any river that runs all the way through to the sea, but the principal rivers of Los Angeles and San Bernardino counties run large streams of water out through the valleys for a considerable distance into the valleys, and there is one, the San Gabriel river, I think, that runs all the way to the sea most years.

Q. Some years it does not?

A. Some years it may not quite reach it.

Q. Are there not places in the San Gabriel river where it is per-

fectly dry, apparently, on the surface in places—the water goes below and comes to the surface again at other points below at greater or lesser intervals?

A. The entire volume of water in the summer time in the San Gabriel river is taken out for irrigation at the mouth of the canyon, and below for several miles it is dry, but it is reinforced by springs and cienegas.

Q. Is it not true also of the Santa Ana river, from which the large sections of Riverside obtains its supply, that a short
417 distance above the point where it diverts the water from the river in the summer time that on the surface the river is dry?

A. I think the Santa Ana river would probably flow clear through to the sea if it were not for the diversion of the water by irrigation.

Q. That is — what I asked you. Is it not a fact that there are dry places above where Riverside takes its supply from the river?

A. The principal supply for Riverside is not taken from the Santa Ana river proper.

Q. A large portion of its supply and the other portion from Warm creek that enters into the river?

A. Yes, sir.

Q. The principal canal is the lower canal, and takes its water from the river?

A. What was originally the principal canal takes its water from the river. The principal canal takes its water from Warm creek.

Q. That empties into the Santa Ana river just above the old canal?

A. Yes, sir.

Q. Are there not points above the heads of these respective canals in that river where it is dry, and then again the water comes to the surface down near Chino, where another large ditch takes its water?

Mr. WORKS: I object to all thos inquiry with reference to other rivers as immaterial, irrelevant, and incompetent.

Mr. GIBSON: I want to show the character of those rivers; that they are not all on the surface.

A. The Santa Ana river differs entirely from the Sweetwater river and is properly a living stream. It is supplied and
418 reinforced all the way along in the valley by fresh supplies—springs coming in. Nothing of that sort can be found on the Sweetwater in the lower courses. There is no parallelism at all between the two streams.

Q. I don't mean to say or have you understand me as thinking that the Sweetwater is equal to the Santa Ana, but I want to show that all rivers in California are variable, and that none of them, perhaps with the exception that you have named of the San Gabriel, flow any distance through any valley as a living, continuous stream on the surface.

A. Both the San Gabriel and the Santa Ana river- and other

rivers of smaller size furnish constant supplies of water for canals for irrigation. That cannot be said of the Sweetwater. There is no supply of water in the Sweetwater of any moment to supply any irrigation canals.

Q. Are there not other streams flowing from the same range of mountains that supplies the Santa Ana where the water does not reach the valley and yet they supply canals for irrigation? Take, for instance, the City creek—I mean during the irrigating season—if allowed to flow in its sandy bed, would it not flow into the valley, and yet by taking up the water a short distance above the mouth where it debouches into the valley furnishes a very good stream for irrigation purposes?

A. Yes, sir; there are a number of streams of that character, but I don't recognize in them any parallelism to the Sweetwater. The Sweetwater is not a stream of that character.

Q. The Sweetwater is a stream that will flow for about eight months in the year, would it not, down to the valley in which the water is now impounded by the dam?

419 A. Yes, sir.

Q. You would call that a river in California parlance, would you not?

A. It is named the Sweetwater river. I suppose it by courtesy could be called a river.

Q. Is it not as much entitled to the name of river as many other streams known and designated as rivers?

A. It is a very respectable river in the winter time.

Q. Is not that true of most of the California rivers or streams that have their sources in the mountains?

A. I don't know of any of them in this county. The Sweetwater river is valueless as an irrigation supply without storage, and that is true to a great extent of other streams; but there are a number of streams in southern California which will supply more or less water for irrigation without storage.

Q. Now, that is just the point I want to get at. It is a stream that will furnish water if it is stored by means of a dam or any other suitable way of impounding it?

A. Yes, sir.

Redirect by Mr. WORKS:

Q. You stated in your cross-examination that the mesa lands in this section of country are particularly destructive to the pipes. Are Chula Vista and National ranch and the Otay mesa land?

A. Yes, sir; most of the lands in those places consist of mesa land.

Hearing continued until October 16, 1895, at 9.30 a. m.

420

WEDNESDAY, *October 16th*, 1895—Morning session.

H. N. SAVAGE recalled.

By Mr. GIBSON :

Q. Mr. Savage, have you prepared that statement regarding the portion of the pipe line No. 1 and the reservoir that should be charged, according to the claim of the company, to National City? If so, you will please state what it is.

A. I have compiled some figures which show from one basis what proportion of the reservoir and pipe line No. 1 and No. 2 might properly be charged to National City.

Q. I asked you respecting pipe line No. 1.

A. I have no statement in which the main pipe lines are segregated.

Q. Can you segregate them from that statement that you are referring to?

A. I can, but it would take some considerable time to do it. It is a matter of hours.

Q. Go right on and give it as it is and then we will see.

A. The basis on which these figures are made is taking first the cost of the Sweetwater dam as has been testified about in previous testimony—and I want to say that these figures, while approximately correct, are not exact calculations carried down to pennies, as they are in round numbers—the cost of Sweetwater dam at \$250,000, the cost of the reservoir \$132,318.82.

Mr. WORKS: Those are the same figures you had heretofore, are they?

WITNESS: Yes, sir; the total of those two items would make \$382,318.82. The main pipe lines through which water is supplied from the Sweetwater dam and reservoir to National City limits, one main 36, 30, 24, and 18 inches diameter, reducing throughout its length, with a second main 6 inches in diameter on Second avenue, Chula Vista, entering the city limits on the south; another main 6 and 4 inches in diameter on Fourth avenue, entering the city limits on the south, and pipe line No. 2 have cost to date approximately \$235,057. The pipe lines in National City distribution system at the present time have cost approximately \$184,000; the pipe lines outside of National City, exclusive of the above main pipes, \$221,000. The cost of maintenance and operation of the pipe system was substantially \$14,680. Now, these calculations do not take into consideration any credits for National City by reason of one of the pipe lines passing through it being used as a supply pipe to land outside; but to offset this the cost of maintaining the pipe line in National City is taken to be the same in proportion to its cost as the maintenance of the pipe lines outside of National City, which more than balances what credit National City system would be entitled to by reason of its pipe line being used as a main for outside supply by reason of the excess number of leaks in this main pipe throughout the limits of National City.

The first item chargeable to National City would be its proportion of the operation and maintenance of the system, the entire operation being \$14,680; hence the proportion chargeable to National City may be obtained from a proportion: as the cost of the entire pipe system is to the cost of the National City distribution system, so is the cost of total maintenance and operation to the proportion chargeable to National City distribution system, which gives, in round numbers, \$4,200. Then, from statements
 422 prepared and already submitted, it is found that National City is using approximately one-fourth of the water being delivered through the main pipe lines; consequently National City should be charged, taking that as a basis, with one-fourth of the expense of maintaining these mains and the dam and reservoir, which, for the main pipe lines, can be obtained by another similar proportion, deducting, of course, from the above maintenance that portion already charged to National City, which will give \$1,000 as the amount National City should annually contribute towards the maintenance of these main pipe lines. Then, for depreciation, National City's proportion of the depreciation of the system, beginning at the dam and reservoir—the reservoir, naturally, has no depreciation—the dam has been charged with a depreciation of about two per cent., which has been a minimum quantity up to the present time, by reason of floods, and so forth, and necessary repairs, and has been taken, as a whole, at \$5,000. One-fourth of this being charged to National City would make \$1,250. Then National City's depreciation of the main pipe lines, the cost of which has already been given as \$235,000, National City's proportion being one-fourth of this, which depreciation has been taken at six per cent. in this computation, would give another amount of \$3,525. Then National City's depreciation of her distribution system should, of course, be charged wholly to National City. Six per cent. of \$184,000 would give \$11,040; then the interest charges which may be made, National City paying one-fourth the interest charged on the dam and reservoir. Six per cent. on \$382,318 would give an amount of \$5,760. National City's interest, maintenance on the
 423 main pipe lines, the cost of which has already been given as \$235,000, National City paying one-fourth of six per cent. on this amount or \$3,525; and then National City again paying the interest on the distribution system within its own limits, six per cent. on \$184,000, making \$11,040. Now, that would give a total of \$41,370 as an annual amount chargeable to National City as her proportion of the maintenance and operation, depreciation, and interest on the cost of the system as above.

Q. That is the mode at which the company arrives at what would be a proper charge upon National City?

A. That is the mode in which the engineer has computed on his own authority what would be, in answer to your question, a proper and reasonable proportion of the annual expenses of that water system that might properly be charged to National City.

Q. Well, what we want is not the individual opinion of the engi-

neer, but the basis upon which the company claims that such a charge should be made.

Mr. WORKS: We object to the question on the ground that it is immaterial, irrelevant, and incompetent and asking the witness for an opinion as to the policy of the company with reference to it—if there is any such thing.

Mr. GIBSON: He is the witness of the company, and if we cannot show by him upon cross-examination upon what the company bases its claim for compensation for water sold, as to water right or water furnished, then we might as well stop.

Mr. WORKS: I do not suppose any such calculation has ever been made, or that the company has ever established any such basis. They have not, that I know of.

Mr. GIBSON: Then we will not pursue that any further.

Q. I will ask you one question in connection with what you have stated there. Was the value of land now owned by the
424 company or the amounts heretofore derived by the company from sales of its lands with water taken into consideration in that connection?

A. There was no land sales or enhanced values of lands of the company or of others receiving their supply from this system taken into consideration?

Q. Do you know upon what the company bases its claim for compensation for water furnished or water sold, of your own knowledge?

A. I do not know the detailed calculations upon which the company bases its claim for compensation for water furnished or sold.

Q. Can you state the number of lots that there are in an acre in National City?

A. The number of lots in an acre in National City could best be stated by saying that the subdivisions in National City are two and a half acre tracts, with an eighty-foot street through on four sides of them, and this block for the purposes of the ordinances under which we are operating is divided into twenty lots, 25 feet in front by 115 feet in length. There are quite a number of different methods of subdividing land which have been put into operation in National City.

Q. The lots are taken as running to the center of the street, are they not? I mean in the estimate of the area of number of lots per acre.

A. They are; yes, sir.

Q. And is it not a fact that it requires eight lots, including the streets to the centers thereof where they abut on the street, to make up the acre?

A. It would require eight; yes, sir; on the basis of twenty lots to two acres and a half.

425 Q. And the lots there are sold by the company as running to the center of the street, subject, of course, to the right of way of the public over the streets for highway purposes?

A. I do not think there is any clause in the company's form of

deed under which lots are conveyed which states explicitly whether the lots are sold as running to the center of the streets or not, but simply designating a lot in a certain block.

Q. Without any mention of the streets?

A. Without any mention of the streets.

By Mr. WORKS:

Q. Mr. Savage, with reference to this pipe line No. 2, are you able to state now what had actually been done and the amount of money actually expended on that pipe line up to the 20th day of February, 1895?

A. The J. D. Hooker Company begun laying pipe line No. 2 under contract which was on file in the county recorder's office in San Diego county December 21, 1894. Approximately 16,793 lineal feet, over three miles, of pipe had been received up to February 20th, 1895. Pipe-laying had begun at the National City end of pipe line No. 2, and J. S. Nickerson, who was the contractor for trenching and back-filling, had performed approximately \$1,810.61 of work, trenching, and so forth, for pipe line No. 2 before February 20th, 1895.

Q. To what extent or in what amount had the company become liable by contract upon that pipe line at that time—February 20th?

A. They became liable in September, 1894, for the entire amount of the contract for pipe line No. 2—the pipe, the laying, the trenching and back-filling.

Q. Your contracts, then, had all been made for the pipe line prior to February 20th?

426 A. They had.

Mr. WORKS: That is all.

By Mr. GIBSON:

Q. Work was not actually commenced, however, until December 21st, 1894?

A. Work was commenced the last of September on the trench. The material for the pipe line was purchased between October 14th and 20th.

Q. Well, was the work diligently prosecuted from the time it was commenced on the trench up to the time it was completed without any cessation or interruption?

A. Yes, sir; with the exception of a little unpleasantness due to a flood that absolutely prevented all work for about thirty days. Aside from that, work was prosecuted as rapidly as the company could in any way get it performed under its contract, which was drawn with special reference to constant work and immediate completion.

By Mr. WORKS:

Q. I believe you were asked and were not able to give the exact amount of work that was done or additions made to the system

after Mr. Schuyler's final report in 1888, which has been referred to in this examination. Will you state now what additions were made, giving the cost subsequent to that report and prior to February 20th, 1895, and also the amount subsequent to the 20th of February, 1895, inside and outside of National City?

Mr. GIBSON: The witness has already given the number of additions, and I think he has given the cost of them. It is unnecessary to go over it all again. If he has the cost there he can state it.

427 A. Pipe lines and additions to the distribution system since the constructing engineer J. D. Schuyler's final report had been made in National City up to February 20th, 1895, at a cost of \$30,868.21, and in National City since February 20th, 1895—

Mr. GIBSON: Wait a minute. We object to any additions made since February 20th, 1895, on the ground that it is irrelevant, immaterial, and incompetent, and we object to any evidence upon that subject.

A. (Continuing:)—of approximately \$22,000. Pipe lines constructed since constructing engineer's final report in 1888, outside of National City up to February 20th, 1895, \$21,673.49; outside of National City since February 20th, 1895, \$59,500.

Mr. GIBSON: We object to any testimony on the part of the witness tending to show additions made to the plant or the cost thereof since February 20th, 1895, on the ground that it is immaterial, irrelevant, and incompetent.

By Mr. GIBSON:

Q. What portion of that cost was expended on the dam of that that is charged to National City prior to February 20th, 1895?

Mr. WORKS: There is not any of it charged to National City. He separates that inside and outside.

Q. Well, inside of National City put it.

A. Of course, there was none of it, as this statement is for pipe lines and so forth constructed inside the limits of National City between the times given.

Q. And the same with regard to the amounts that you gave as the cost of additions made outside of National City?

A. Yes, sir; those were pipe lines only.

Mr. GIBSON: That is all.

Mr. WORKS: The complainant here rests its case.

428 FRED COPELAND, being called as a witness for the defendants and being duly sworn by the special examiner to testify the truth, the whole truth, and nothing but the truth in this cause, now testifies as follows:

By Mr. GIBSON:

Q. You will state your name, age, and occupation.

A. My name is Fred Copeland; age, 62; occupation, surveyor and civil engineer.

Q. Where do you reside?

A. National City.

Q. How long have you resided there?

A. Twenty-five years.

Q. Have you ever been employed by the complainant, The San Diego Land and Town Company?

A. Yes, sir.

Q. If so, state in what capacity.

A. Well, I was employed in 1886 to some time in 1887 as engineer.

Q. Are you familiar with the works of the company, including the dam and reservoir and the distributing system?

A. Somewhat so.

Q. Well, to what extent have you observed them?

A. Well, I was there a great many times when it was being built, and I have seen it a great many times since.

Q. Well, you have been employed on part of the work, have you?

A. This summer; yes, sir.

Q. Are you familiar with the Sweetwater river?

A. Yes, sir.

Q. Were you familiar with the river before the dam of the company was constructed across its course?

A. I was.

Q. State the character of the river with reference to its flow and the amount of the flow, if you know.

A. Well, I have been across the river in a great many places all the time from 1872 until the dam was built and I always found water running at intervals whenever I have seen the river, the whole length of it, from the dam to the source.

Q. At what intervals?

A. Intervals of different length. There was one place where there was a crossing of the river about half a mile above the dam—

Mr. WORKS: Do you mean intervals of time or of distance?

Mr. GIBSON: I suppose he is referring to distance now.

Q. Go on, Mr. Copeland.

A. There is one place in crossing the river about half a mile above the dam where I never crossed it but what there was water.

Q. At what seasons of the year have you crossed it?

A. In the summer season mostly.

Q. At what time in the summer season?

A. All times.

Q. During what months?

A. Well, I do not know that I can give all the months, but the last time I crossed it was in September, 1886.

Q. Was there water there then?

A. There was water there then.

Q. About how much water?

A. I did not measure it; I should judge several inches of water.

430 Q. About how many inches—five, ten, or twenty?

A. Well, probably five or six inches.

Q. How about the flow further up towards the source of the stream?

A. There was another place about three-quarter- of a mile above the head of the reservoir, as it is now, that I never was there but what there was water flowing.

Q. By the head of the reservoir you mean the point opposite the dam?

A. I mean the upper end of the reservoir, furthest up above the dam.

Q. What was the character of the bed of the stream there that is now covered by the reservoir; was it sandy, rocky, or otherwise?

A. Well, the bed of the stream was mostly sandy; it was rocky in places.

Q. Did the water come to the surface anywhere below the present site of the dam?

A. One place.

Q. What place?

A. Down near Bonita.

Q. How far is that below the dam?

A. About two miles, I think.

Q. Did you ever see water there at Bonita in the summer season?

A. Always.

Q. Or irrigation season, before the dam was constructed?

A. Always.

Q. State what years.

A. Well, nearly every year from 1869 to the time the dam was built.

Q. About how much water appeared there during the dry season?

431 A. I should think three or four inches.

Q. How many?

A. Three or four inches, I should think.

Q. Where did the Sweetwater river, when it was flowing a large stream of water, empty before its course was obstructed or its flow was obstructed by the dam?

A. Where did it enter into the bay? It emptied into the bay.

Q. Into what bay?

A. San Diego bay.

Q. For how many months in the year would it run into San Diego bay during the wet season?

A. In 1874 it ran into the bay until August—July or August; I would not be certain of it.

Q. Is the bay that you refer to the San Diego bay that empties into the ocean?

A. Yes, sir.

Q. Into the Pacific ocean?

A. Yes, sir.

Q. Were you at the dam when the foundations were laid?

A. I was there while they were laying the foundations.

Q. State what season of the year that was in and what year, if you remember.

A. That was in December, I think, of 1886.

Q. How far below the surface of the river does the foundation of the dam extend?

A. Well, I think about twenty feet.

Q. Does it rest on the bed rock?

A. Yes, sir.

Q. In going down to bed rock for the purpose of constructing the foundation of the dam, state whether or not any water was encountered; and, if so, how much.

A. There was. I think the engineer claimed twenty inches.

Mr. WORKS: We move to strike out what the engineer claimed. I wish the witness would testify from his own knowledge, not from what people said.

Mr. GIBSON: All right. Let it be stricken out until we find out who the engineer was.

Q. From your own observation, how much water would you say was discovered there?

A. Well, I should say there was a stream 2 feet wide and 6 inches deep.

Q. At what depth below the surface?

A. About 20 feet.

Q. What effect would the building of a dam on the bed rock and extending above the surface of the river—the natural surface of the river—to a height of about 70 feet have upon the water so encountered?

A. It would stop the flow if it was perfectly tight on the bed rock.

Q. Well, this dam that was constructed is tight, isn't it?

A. Well, I think that is a question that there cannot any engineer answer.

Q. It is practically tight?

A. Practically; yes, sir.

Q. And impounds all water that will reach the reservoir?

A. Generally.

Mr. WORKS: Please avoid leading the witness as much as you can.

433 Q. Now state about the size of the stream that flowed in the river during the wet season—what is known as the wet season here—that is, before the construction of the dam.

A. Well, in 1874 that stream was a mile wide in places. It covered the whole of the Sweetwater river, from the dam to the San Diego bay, from hill to hill.

Q. What was the width of the river at the dam, about? I mean the actual bed of the river, not the flood water, but the natural bed of the river.

A. Oh, it was not over ten feet wide right at the dam.

Q. Where was this widest portion, the actual bed, above or below the dam?

A. Well, I think, generally the widest was below.

Q. Was it wider above the dam than about 10 feet at any place?

A. Oh, yes.

Q. State how far above, and about what width it was.

A. Well, the river was through some parts of the Jamacha—was probably 100 feet wide.

Q. How far above the present reservoir is the Jamacha?

A. Part of the Jamacha is in what is now the reservoir, but where the river was that width was probably two miles above the reservoir.

Q. You say there was considerable water in the river in 1874. How was it with regard to other years that you saw it during the wet season?

A. In 1884 there was just about as much.

Q. What is the character of the soil in National rancho and Otay and Ex-Mission, is it dry and arid or moist?

A. The most of it is a dry, red soil.

434 Q. Can ordinary agricultural products be produced without irrigation?

A. Throughout the season, do you mean?

Q. Yes; grown during the season in which they thrive.

A. In wet seasons you can raise agricultural products—in the winter—in wet seasons.

Q. Of what kind?

A. Grain, and so forth, and hay.

Q. Grain and hay?

A. Yes.

Q. How is it with regard to trees—fruit trees and vines?

Mr. WORKS: We admit, if you want to prove that fact, that you cannot grow trees successfully without irrigation.

Q. What is the subsoil underneath this red soil that you speak of?

A. It is generally a clay.

Q. At what depth is it from the surface, on an average?

A. From six inches to three feet.

Q. Does that affect the amount of water that is necessary to be used for irrigation or not?

A. I suppose it does.

Q. Does it increase or decrease the quantity necessary.

A. Decreases it.

Q. What quantity of land adapted to the growth of orchard trees and vines or either will one miner's inch of water irrigate?

Mr. WORKS: Objected to upon the ground that the witness is not shown to be an expert with reference to the use of water, and there is no foundation laid for any such opinion.

Q. Have you had any experience in irrigating land in that section?

435 A. No, sir; except in small quantity.

Q. Well, what quantity?

A. Just a few lots where I live is all.

Q. Have you given any attention to irrigation?

A. Not very much.

Q. Well, do you know of your own knowledge the amount of water that is necessary for irrigation in that locality?

A. I do not.

Q. Are you familiar with the portion of pipe line No. 1, as originally laid, referred to here as the spiral-pipe line?

A. Yes, sir.

Q. State what you know about it.

A. I know that it was put in and abandoned.

Q. Well, how long was it abandoned after it was put in?

A. The 24-inch I do not think was ever used at all.

Q. How much was there of that?

A. About a mile, I think.

Mr. WORKS: Do you mean it was never put in?

Witness: It was put in, but there never was any water put through it.

Q. Do you know of any other portion of the pipe line being abandoned or not used?

A. Nothing except the spiral pipe. There was spiral pipe that was raken up there shortly afterwards.

Q. About how much spiral pipe was taken up altogether, if you know?

A. I do not know.

Q. Well, can't you give an estimate?

A. (Refers to paper.) About two and a half miles, I think, of the smaller pipe.

436 Mr. WORKS: What is this paper you were getting that information from?

Witness: It was a statement I made two years ago before the trustees.

Mr. WORKS: Do you dispute the amount that was taken up, Judge Gibson?

Mr. Gibson: No; I do not know that I do.

Q. Have you made any estimate or can you make an estimate of what the dam and pipe line No. 1 could be duplicated for or could have been duplicated for on and immediately prior to February 20th last?

A. According to the best of my—

Mr. WORKS: Do not answer as to what the estimate was. The question now is whether you have made such an estimate or can make it.

WITNESS: Well, I have made such an estimate.

Q. State what it is.

Mr. WORKS: We object to the question on the ground that the witness is not shown to be an expert in such matters; that there is no foundation laid for the giving of an opinion by him, and the question as to the amount for which the plant could be duplicated is immaterial, irrelevant, and incompetent.

A. Well, my estimate did not vary materially from Mr. Savage's estimate that he gave—two-thirds.

Mr. GIBSON: That is all. Take the witness.

Mr. WORKS: We do not want to ask him any questions.

437 C. S. ALVERSON, being called as a witness for the defendants and being duly sworn by the special examiner to testify the truth, the whole truth, and nothing but the truth in this cause, now testifies as follows:

By Mr. GIBSON:

Q. State your name, age, residence, and occupation.

A. C. S. Alverson; 46; civil engineer; San Diego, California.

Q. What experience have you had as a civil engineer and how long have you practiced your profession?

A. The greater part of my life I have been engaged on surveys and civil engineering. My experience on the coast dates from 1876. Since that time for several years I was engaged on public surveys and the examination of public surveys in California, Nevada, and Arizona. The greater portion of that time my work led me through the irrigated and mining portions of California and Nevada, and during that time I collected a great deal of information and data in reference to water systems as relating to flumes and ditches and plans for hydraulic work. Since 1886 most of the time I have been in southern California, engaged principally in hydraulic engineering.

Mr. WORKS: Since what date, Mr. Alverson?

WITNESS: Since 1886. During that time I have served in the capacity as assistant engineer on the San Diego flume; as engineer for the International Company in lower California in the examination of lands and possible water systems and as chief engineer of the Pamo Water Company; as engineer in charge of the Lake Hemet Land and Water Company; as chief engineer of the Linda Vista irrigation district, and engineer in charge of the Escondido dam, which is completed and known as the property of the Escondido irrigation district. I am also a charter member of the American Society of Irrigation Engineers.

438 Q. Are you familiar with the San Diego Land and Town Company's water system situated, in this county? If so, state what familiarity you have with the system.

A. Since 1886 I have visited the dam and have been over the water system quite a number of times, and as a hydraulic engineer I have taken interest in the system as well as other systems throughout the United States, and even other countries, and have endeavored to keep myself posted on the permanent water systems throughout the United States, and more particularly on those that are local, situated mainly in southern California, and as such I have examined the system and think that I am reasonably familiar with it in a general way. Ever since the commencement of this suit I have been present at most of the testimony and have followed the testimony, and have also examined the topographical map of National ranch, which is given here as Complainant's Exhibit No. 5, I think

Q. You will please state, in your judgment as a hydraulic engineer, what amount of water can be stored and used from the Sweetwater system as it existed prior to February 20th, 1895.

A. The amount of water that can be obtained by run-off or other means from any water-shed that is tributary to a stream is dependent on a great many different conditions, and in my examination of water-sheds in southern California it has extended to the water-shed naturally *naturally* tributary to the Sweetwater reservoir.

The water-shed tributary to the Sweetwater reservoir is varied in its character. Beginning at the Sweetwater dam, at an elevation
439 tion of about 150 feet above sea level, it rises with different slopes to an elevation of about 5,000 feet near the summit of the Cuyamaca mountains. The upper portion of the water-shed to a great extent is favorable for a large per cent. of run-off from flood waters, and, to be brief, taking the system as a whole, it should furnish a considerable quantity of water to be stored in the Sweetwater reservoir; but in the calculations that I have made I have assumed that the data given by Mr. Savage, the engineer for the company, is correct with certain reservations, which I will explain hereafter.

The first thing to be considered is the amount of evaporation which should be charged to the reservoir. The company since 1888 has had instruments at the dam for the purpose of measuring the evaporation, and, taking their figures, the average may be taken as 58 inches in depth per annum. But in considering the amount which should be charged to the reservoir I do not agree with Mr. Savage for the following reasons: Assuming that the reservoir at the beginning of one season is full, prior to that time the company would be taking water out of the reservoir for irrigation and domestic use. The evaporation has been going on, but the flood waters have filled the reservoir and were in excess of the amount taken out, and after the flood waters or the amount of water flowing into the reservoir is not sufficient to compensate for evaporation and the amount that is being taken out, still there is some flowing in, which is apparent by testimony given in this case. This should be credited to the storage capacity of the system.

Assuming that the second year is a very dry year, and that the time that the rainy season begins and water begins to flow
440 into the reservoir the water surface of the reservoir has reached its lowest stage, from that time on water is flow-

ing into the reservoir and water is being taken out. The rainy season continues, and the flood waters increase and exceed the amount of water that is taken out, and at a certain time the water surface in the reservoir reaches its maximum elevation, and this is taken as the water stored during that season.

The evaporation for the second year that has taken place in the reservoir prior to this time should not be charged to the available duty of the reservoir, and on this basis I have assumed that the proper depth of evaporation to be charged to the reservoir per annum to be 48 inches.

The next point to be considered is the amount of water that has been or can be stored in the reservoir from the run-off of the watershed. I have to rely to a great extent on the data furnished by the complainant in this case with regard to the amount of water that has been actually stored, and I have no doubt but what it is correct, except the reservations that I have named and hereafter name.

Q. Proceed and give the amount that can be stored and used.

A. Mr. Savage, the engineer for the company, in his testimony stated that in the winter—

Mr. WORKS: I object to the statement of what other witnesses have stated.

Q. State the amount, and then you can state your method of reaching your conclusion.

A. The manner in which I have arrived at this conclusion I do not think would cut any figure.

Mr. WORKS: Then you had better leave it out. In quoting Mr. Savage you may or may not quote his exact language. It is objectionable anyway to incorporate it in that way.

Mr. GIBSON: You must not enter into an argument upon it, but you may state upon what you based your calculations, upon Mr. Savage's testimony or upon the testimony of any of the witnesses in the case.

Mr. WORKS: Oh, yes; you can do that. I object to his quoting Mr. Savage.

A. The winter of 1893-'4 was the driest season known to this country for a period of about twenty years. I have arrived at this conclusion from data showing the amount of rainfall taken in San Diego and other points on this water-shed and contiguous to the same, and, from the best data that I have been able to obtain, the net storage of the Sweetwater reservoir in the winter of 1893-'4 was about 500,000,000 gallons. Presumably in the year 187- there was a winter in which the storage would probably have been about the same. In all intermediate years and from data obtained there is no reason to suppose but what the amount of water that was or could have been stored in the Sweetwater reservoir considerably exceeded these amounts. It would appear, then, that it is possible that once in twenty years we may look for an extreme dry season. Intervening in this period there may be other years which are ordi-

narily dry and in which the rainfall is only normal, and in making my calculations as to the available amount of water that can be stored in the Sweetwater reservoir I consider that an extreme dry year, which in all probability will not occur only once in twenty years, should not be taken into consideration, for the reason that the necessity of providing for a year of this character would entail a

considerable additional expense to the cost of the dam, and
442 would also cause to be stored in the reservoir a considerable quantity of water for which the company has no use for nineteen years, and on that assumption I have taken the next lowest amount of run-off from the reservoir which I have been enabled to determine. That, from the best data which I have been able to obtain, is about two billion gallons. Prior to February, 1895, the storage capacity of the Sweetwater reservoir to the top of the dam was given as 5,882,278,000 gallons; add to this 2,000,000,000 gallons, making a total of 7,882,278,000 gallons. The total evaporation for the two years, as figured on the basis which I take, would be 1,140,400,525 gallons; the available water for use would be 6,741,877,575 gallons, or for one year 3,370,938,787 gallons. Taking a basis of 350,000 gallons per acre per annum, this would irrigate—

Mr. WORKS: We object to that part of the answer as not being responsive to the question. The witness has his answer written down, it seems.

WITNESS: No; I haven't it written down. It is simply the calculation. (Exhibits paper.)

Mr. GIBSON: We will withdraw that latter part and ask another question.

Q. The amount that you have given there as being the available capacity for one year, was that the amount that was available on and prior to February 20th, 1895?

A. As I have figured, it was.

Q. Has the capacity of the dam been increased in any way since then? If so, state how and to what extent.

A. I visited the Sweetwater dam several days ago and found that there had been improvements made since I last visited it. With
reference to storage, the improvements were the reinforcing
443 of the parapet wall and leaving a space in the center of the dam about 200 feet in length, of the same height as originally, but thicker and heavier. The remaining portion of the top of the dam has been raised to an elevation of about 21 inches above the top of the parapet wall in the center, and this wall has been extended into the sides of the canyon so as to prevent damage from floods. The wasteway has been enlarged and pipes have been put in for the purpose of controlling the flood waters in case of an excessive rainfall. Prior to February, 1895, the water could not be safely stored above the top of the dam, but since these improvements have been made the water can be stored to the top of the parapet wall in the center of the dam. This would increase the storage capacity of the reservoir about 912,000,000 gallons—that

is, approximately. The exact area that would be flooded by increasing the water surface three and one-half feet, I do not know.

Q. State the amount of land that can be irrigated from the available capacity of the reservoir as it existed in February, 1895, first on the basis of 350,000 gallons to the acre.

A. I have estimated that the available quantity of water in the reservoir for irrigation and other purposes is 3,370,938,787 gallons. That divided by 350,000 would give the result of 9,631, which would be the acreage.

Q. Are you familiar with the amount of water that is necessary *per capita* for domestic purposes? If so, state what it is.

A. In a certain way, that is a difficult question to answer. I have data from something over 200 cities in the United States, extending over a period of forty or fifty years, and there has been

considerable difference in the quantity of water used *per*
444 *capita* in the different cities, depending on various conditions.

In the Eastern States cities of ordinary size use a less amount of water than in cities of greater population. On the Pacific coast, where irrigation is an important factor in the consumption of water, it would be naturally the reverse, for the reason that when the settlements in a town or city are scattered and considerable area of ground is used for the raising of various crops, if this is charged to city use, then it increases the amount *per capita*.

Q. Well, leaving out of consideration the amount used for irrigation and taking into consideration the ordinary uses for which water is used in a city, state what the *per capita* amount is in your judgment.

A. From 30 to 50 gallons in a city of less than 5,000 inhabitants.

Q. Does that mean per day, per week, or per month?

A. Per day.

It is admitted that there is no sewer system in National City.

Q. You know National City, the territory called National City?

A. Yes, sir.

Q. In this county, do you know the manner in which the inhabitants are distributed over it?

A. I am generally familiar with it.

Q. Well, taking into consideration the manner in which the inhabitants of National City are distributed over its territory, and that such inhabitants number in the aggregate about 1,300, and that the city has no sewer system, and consequently there is no demand for water for sewer purposes within the boundary comprising the city, what in your judgment would be a fair
415 allowance *per capita* for domestic purposes, exclusive of irrigation uses, within that territory?

A. Do you mean to exclude irrigation entirely—just for household use?

Q. Yes; excluding irrigation and including all domestic purposes, such as supplying water for drinking purposes, ordinary household purposes, the watering of stock, and the use of baths and any other uses that may occur to you for domestic purposes?

A. About 30 gallons.

Q. Now, did you in that estimate include water that might be used for mechanical purposes?

A. Which estimate?

Q. This last one that you have made of 30 gallons *per capita*.

A. I did not.

Q. When you speak of *per capita* you mean per day, do you not?

A. *Per capita* per day.

Q. Now, you have given the duty of the available amount that the reservoir would store in February, 1895, as 9,631 acres. What additional acres could be irrigated from the 912,000,000 gallons that can be stored in addition to the available capacity of the reservoir as previously stated by reason of the improvements made thereon since February, 1895, on the basis of 350,000 gallons to the acre?

A. Estimating on the same basis, the storage for the two years would be 8,794,598,640 gallons.

Q. What is that?

A. The evaporation due to an increased area of water surface exposed would increase somewhat, but I have estimated the evaporation for the two years to be 1,205,566,375 gallons, which, taken from the total amount, leaves a net amount of 7,589,032,265 gallons, or for one year 3,894,516,132 gallons.

Q. State the area that that amount will irrigate on the basis of 350,000 gallons per acre.

A. It would be 11,127 acres.

Mr. WORKS: Do you mean it adds that much?

WITNESS: No; that is the total amount.

Q. You heard the testimony of Mr. Savage, the company's engineer, with reference to the duty of the system, did you not?

A. I did.

Q. I mean the duty of the system including the reservoir. Now, assuming that the amount of water available for use in the reservoir as given by Mr. Savage is correct, do you find any discrepancy in his statement in regard to the amount of land that could be irrigated? And, if so, state what.

Mr. WORKS: We object to the question as being immaterial, irrelevant, and incompetent, and asking the witness to criticize the testimony of another witness and not asking him to state the facts.

Mr. GIBSON: We want him to state the facts wherein there is a discrepancy or discrepancies.

A. Mr. Savage in his testimony estimated the available amount of water stored to be 2,443,536,000 gallons. This, on the basis of 350,000 gallons per acre per annum, would irrigate 6,980 acres.

Q. Well, does that amount differ from the amount of acreage he gave as being the available duty of the system?

A. He stated in his testimony—

Mr. WORKS: We object to the witness stating what was stated in the testimony of some other witness as being irrelevant, immaterial, incompetent, and improper.

447 Mr. GIBSON: We will withdraw that question and put this one.

Q. Assuming that Mr. Savage testified that the available duty of the reservoir was 6,000 acres, in what respect does such statement differ from the fact?

Mr. WORKS: We object to the question on the ground that it is immaterial, irrelevant, and incompetent, and asking the witness for a conclusion and comparison and not for the facts.

A. The basis of irrigation as given has varied considerable, but in the calculations made in general it has been assumed at 350,000 gallons per acre. The people may or may not have used water to an excess of that. If they have, it would irrigate a less amount; but if they have used only 350,000 gallons per acre per annum it should irrigate, as I have stated, 6,980 acres.

Q. What effect does the furnishing and delivering of water at the elevation of 140 to 165 feet above sea level have upon the duty and available capacity of the various pipe lines in the Sweetwater system as they existed on and prior to February 20th, 1895?

Mr. WORKS: Objected to on the ground that it is immaterial, irrelevant, and incompetent, and asking the witness for an opinion as to a matter upon which he is not shown to have any personal knowledge.

A. In constructing any system of water works, it is necessary for the constructing engineer to know the character and conditions which exist and the uses to which the water is to be applied.

Mr. WORKS: We move to strike out the answer just given on the ground that it is not responsive to the question and is immaterial, irrelevant, and incompetent.

Q. Well, taking this system as it existed on and prior to February, 1895, what effect would the delivery of water at an elevation
448 of from 140 to 165 feet above sea level have upon the duty and available capacity of the pipe lines? Never mind giving your reason, just give the fact and let them get the reasons by cross-examination.

A. The elevation of the outlet pipe above sea level is about 145 feet at the Sweetwater reservoir. The supply pipe has a diameter of about 36 inches for a distance of about 1,500 feet; then it is reduced to a 30-inch pipe, which continues down the valley for something over five miles. If you desire to deliver water at the lower end of the 30-inch pipe at an elevation of 90 feet above sea level, and with no pressure head on the pipe at the dam—in explanation, I mean that the pipe is simply covered with water at the dam, and there is water back of it sufficient to keep the pipe running full—the capacity of the 30-inch pipe line to deliver water at an elevation of 90 feet above sea level would be about $19\frac{1}{2}$ cubic feet per second, or 975 miner's inches. Under the same conditions at the dam, and delivering water at an elevation of 140 feet above sea level at the lower end of the pipe, the capacity would be about 6 cubic feet, or

300 miner's inches, or less than one-third. Assuming a head of 20 feet on the pipe at the dam, and delivering water at an elevation of 90 feet above sea level at the lower end of the pipe, its capacity would be about 22 $\frac{3}{4}$ cubic feet, or 1,137 miner's inches. Under the same conditions at the dam, namely, 20 feet head of water on the pipe, and delivering water at the lower end of the 30-inch pipe at an elevation of 140 feet above sea level, the capacity would be about 12 $\frac{1}{2}$ cubic feet, or 625 miner's inches, a little more than one-half. This illustrates the effect of delivering water at varying elevations.

449 Taking the 18-inch pipe line running through National City, approximately three miles in length, and you desire to deliver 3 cubic feet of water per second at the lower end of the pipe, then the loss of head due to friction would be about 12 feet. Continuing along the 12-inch pipe line, which extends to a distance of about one mile, to the point where it leaves the limits of National City to deliver one cubic foot of water at the lower end of the 12-inch pipe, there would be a loss of head due to friction of about 4 $\frac{1}{2}$ feet. Taking the 12-inch pipe line extending through the Ex-Mission tract, a distance of about three miles, and desiring to deliver one-fifth of a cubic foot of water at the lower end, the loss of head due to friction would be about 3 $\frac{1}{2}$ feet. Then, in order to deliver one-fifth of a cubic foot of water at the lower end of the 12-inch pipe line it would necessitate an additional head of about 20 feet throughout the entire system above the elevation of the point of delivery. This is assuming that you deliver at the end of the 18-inch pipe line and the end of the 12-inch pipe line where it leaves the limits of National City the quantities of water which I have designated. This would be true in regard to any of the elevations above certain points throughout the system.

Q. What do you mean by hydraulic head in order to overcome friction; do you refer to the friction caused by the passage of the water through the pipes?

A. Yes, sir; if there is a head of water on a pipe at its intake and the pipe is extended to an indefinite distance, there is a point at which water will not flow out of the pipe even, although the lower end may be several feet below the intake or the pressure head. This is due to loss of force caused by friction in the pipe or conduit.

450 Q. What hydraulic head would be necessary to be maintained above the intake of pipe line No. 1 to make that pipe line reasonably effective for the conveyance of water through it to the various points at which it is delivered for use?

A. That is dependent upon the amount of water that you distribute through the system before reaching the extremity of your laterals, and also on the amount of water which you delivered at the extremity of these laterals and the elevation at which that water is delivered.

Q. Well, taking into consideration pipe line No. 1 as it existed in February last with the various elevations to which it is designed to deliver water. How much of a hydraulic head would be required above the point of intake?

A. If you desire to deliver one-fifth of a cubic foot of water at the lower end—when I say lower end I mean the end at which the water is distributed, the other end of the pipe would be considered as the beginning of the pipe—then, in order to deliver $\frac{1}{5}$ of a cubic foot of water per second at the end of the 12-inch pipe line in what is shown on Complainant's Exhibit No. 5 as Horton's subdivision of Ex-Mission tract, and at an elevation of 160 feet, it would be necessary to maintain a head of water at the Sweetwater dam of an elevation of 180 feet above sea level.

Q. Supposing that pipe line extending into the Ex-Mission tract were cut off at the point where it leaves the National City boundary on the north, would it reduce the hydraulic head that you have referred to?

A. It would.

Q. Or have any material effect upon it; if so, how much or to what extent?

451 A. To deliver the water to an elevation of 160 feet at the northern limits of National City?

Q. Yes, sir. Supposing the pipe were cut off at that point and not extended to the higher elevations outside in the Ex-Mission tract, would it reduce the hydraulic head necessary to force water through the pipe to the elevation of the northern boundary, given at 65 feet?

A. It would, materially. The exact amount I have not got. I have not any tables of the capacity of pipes here, and I could not give it.

Q. The same would be true with regard to all laterals extending to elevations above that, would it not, outside of the city?

A. It would have the same results, subject to the conditions I have named.

Q. What effect upon the capacity of the pipe does the extension of laterals to an elevation of, say, from 140 to 163 feet have?

A. In order to deliver water through these laterals you have to maintain a head at the dam equal to the elevation at which the water is delivered, plus the loss of head due to friction in the pipes.

Q. Which would be how much?

A. It varies according to the size of the pipe, the character of the pipe, and the amount of water you desire to deliver, and the elevation. There is no regularity.

Q. Taking into consideration the condition of pipe line No. 1 as it existed in February, 1895, and excluding the extension into Ex-Mission tract on the north, would the pipe line deliver the available capacity of the reservoir or not? If it would, state in what manner the water would have to be distributed in order to effect such a result.

452 A. Theoretically, the pipe line would deliver a given quantity per second per hour or per day. As to its available duty, that depends on the manner in which you distribute the water. With a pipe line it is an important factor whether you maintain a large capacity at all times or whether the water is distributed in

rotation. If you are delivering, say, 20 cubic feet of water, or were liable to be called upon to deliver 20 cubic feet of water, then if you maintain a system which will deliver this 20 cubic feet of water at any and all times, there would be considerable additional cost. If delivered in rotation, the size of the pipe and the cost of the system would be materially diminished.

Q. State whether or not that pipe, if used in rotation, as you term it, would deliver the available capacity of the reservoir as it existed in February last, and taking into consideration the fact that a constant pressure in the pipe is needed to supply domestic use in addition to irrigation.

A. It would be difficult to answer the question direct, for the reason that the available duty of the reservoir depends on the length of time in which you distribute the water. If you were to distribute all the water in the reservoir in one month it would require a very large system. If you distribute it in six months it would require a great deal smaller system, or if you distributed it in 365 days, a still smaller system.

Q. Well, assuming that the irrigation season extends over a period of 200 days, and that the use for domestic purposes extends over 365 days, and that the whole number of persons to be supplied by domestic use is about 2,500 people, inside and outside of National City?

A recess is taken until 1.30 o'clock p. m.

453

Afternoon session.

C. S. ALVERSON recalled.

By Mr. GIBSON:

Q. (Last question read by reporter.)

A. It would not, unless the water was distributed in rotation.

Q. What do you mean by rotation?

A. The greater portion of the water under this system is used for irrigation. It is not necessary that land should be irrigated every day, but only at stated intervals, dependent on the character of the soil and the character of the crops which are irrigated, and in order to distribute water, especially in a pipe system, in an economical manner, it is necessary to deliver that water in rotation, or the system will cost a great deal more than is in accordance with good engineering. It is the almost universal custom throughout southern California, in water systems where the conditions are similar to those which exist in the Sweetwater system, to irrigate in rotation. If the system were supplying water entirely, or nearly so, for domestic and municipal purposes, then it would be different.

Q. Then, in your judgment as a hydraulic engineer, if the water for irrigation were distributed in rotation—that is to say, different sections at different times—pipe line No. 1 would be sufficient to distribute the available capacity of the reservoir as it existed in February last, would it not?

A. Not entirely.

Q. State to what extent it would fail to do so.

A. In my judgment it would irrigate between four and five thousand acres of lands lying in Chula Vista and National City, and furnish also the water required for domestic use, providing
454 the water was not delivered at too great an elevation above sea level.

Q. If National City contains one-fifth of the irrigable area under irrigation, and receives 21.24 per cent., or, say, 22 per cent., of the amount of water furnished by the system, and yields one-half of the revenue received by the company for furnishing water, and assuming the original cost of the plant—that is to say, the dam and reservoir and pipe line No. 1—to be as stated by the witnesses for the complainant, what would those various proportions bear to the cost of the system as stated in the manner that I have referred to? In other words, what would be the proportion of the stated cost chargeable to National City?

Mr. WORKS: Objected to upon the ground that the question is unintelligible and contradictory; upon the further ground that it calls for an opinion from the witness upon a question about which expert opinion cannot properly be given, and on the further ground that the question and the evidence sought to be elicited is immaterial, irrelevant, and incompetent; on the further ground that the question asks the witness to determine a question of law as to what proportion of the expense should be borne by National City.

A. That is a hard question to answer without some calculations.

Q. Well, make your calculations.

A. I prefer to take a little time.

Mr. GIBSON: All right; we will pass that. Take your time and make your calculation.

Q. In your judgment could the Sweetwater system, consisting of the dam and pipe line No. 1, as it existed on February 20th last—what could it be duplicated for?

455 Mr. WORKS: We object to the question on the ground that it is immaterial, irrelevant, and incompetent.

A. From my knowledge of the cost of materials and the cost of labor that existed at the time of the construction of the system and the prices at the present time, I should say that the system could be duplicated for about two-thirds the original cost.

Mr. GIBSON: You may take the witness.

Cross-examination.

By Mr. WORKS:

Q. When do you say you commenced practice as a civil engineer?

A. I have been engaged in that more or less since I was eighteen.

Q. When did you commence active work as a hydraulic engineer?

A. Well, as stated in my testimony-in-chief, at the time I was engaged on Government work, beginning about 1876 and extending
33—25

to 1885, while I was not directly engaged in hydraulic work, I was in the section of country in which there were a great many hydraulic works and appliances, and it would be my intention to devote my time principally to hydraulic engineering, and I gathered a great deal of data and information.

Q. Be kind enough to answer my question. When did you commence the active practice of hydraulic engineering?

A. Active practice in 1886.

Q. Where did you commence work?

A. On the San Diego flume.

Q. In what capacity did you act there?

A. Assistant engineer.

Q. Who was the chief engineer?

A. Lew B. Harris at first, and afterwards J. M. Graham.

456 Q. How long did you work in that capacity?

A. As assistant about twelve months.

Q. What was the nature of your work?

A. It was the location of the line.

Q. Flume line?

A. Flume line and in charge of construction.

Q. What construction?

A. The construction of the flume, the trestles, and in the survey and examination of the Cuyamaca water-shed.

Q. To what extent did you take part in the survey of that water-shed?

A. I made a survey entirely around the water-shed and computed the area.

Q. Did you do anything else in connection with the water-shed except the survey of it?

A. No, sir.

Q. What else did you do as assistant engineer of the flume company?

A. I laid out a portion of the La Mesa tract; ran the flume lines and pipe lines from La Mesa tract, and from the present La Mesa reservoir to Teralta.

Q. Do you regard the surveys of those lines, the surveying of the lands, and the running the lines of the water-shed as hydraulic engineering?

A. Yes, sir; I do.

Q. What is that?

A. In a certain sense.

Q. In what sense?

A. In the sense that any engineer whose profession it is
457 and who intends to make it his profession in the future that he not only devotes his time to performing the work required of him, but also in acquiring knowledge and information in regard to the particular system on which he is employed and of the water systems in general.

Q. If I understand you, the only work you did there was to locate this line of the flume, making the survey of the water-shed and survey of some of the lands of the flume company. What had that

to do with the quantity of water that might be secured from that water-shed or the amount of water that might be stored in a reservoir, or anything connected with the matters about which you have given an opinion in this case?

A. It would have no particular bearing.

Q. It would have none at all, would it?

A. Oh, yes—wait a moment until I answer the question.

Mr. WORKS: I did not intend to interrupt you.

A. The work itself does not give the engineer any particular information, but, as I have stated in the previous answer—in the answer to the previous question—that he is or should be—and I was—all this time engaged in collecting data and information in regard to this water-shed and other water-sheds.

Q. I am not speaking about what you were doing outside of your work for the flume company. My question is what this particular work you did for the flume company would have to do with the matters I mentioned in my last question.

A. No special bearing only in reference to that system and the work performed.

Q. When did you quit work on the flume or for the flume company?

A. It was in the spring of 1888.

458 Q. Where did you go from there?

A. I remained in San Diego a few days, and then was engaged by the International Company in Lower California.

Q. In what was the company engaged at that time?

A. They were engaged in subdividing and surveying lands.

Q. It was not a water company at all, was it?

A. It was in one sense.

Q. In what sense?

A. For my instructions were at the time I was making the surveys of the land and getting the topography of the country and examining the grant lines to look to the advisability of developing water and placing it on those lands.

Q. Did you make any surveys with that view?

A. Yes, sir.

Q. To what extent?

A. I made an examination of the San Vicente river, which is below Ensenada, and also on the San Ramon river, which is near San Quentin.

Q. Did you make any written reports or estimates as to the water supply or anything of that kind as a result of your work there?

A. There was nothing, only the notes that I took in the making of the examinations and surveys, and verbal report that I made to the general manager.

Q. Were there any developments in that direction as a result of your work?

A. There have been none at the present time.

Q. How long were you engaged there?

A. Well, I was engaged at different periods for, I think, about a

year and a half, and actively engaged about two-thirds of that time.

459 Q. Where did you go from there?

A. For about a month I was assistant engineer for the Pamo water system, and after that was appointed chief engineer.

Q. How long were you engaged for the Pamo Water Company?

A. I was continuously engaged in the field about a year and a half. After that I was engaged in office work several months, and at different times subsequently I was called upon to make examination and reports on the system.

Q. What amount of developments or construction was done by that company?

A. There was very little actual construction done.

Q. Was there any?

A. No; it would not be considered any construction.

Q. Then where were you employed after the determination of your employment with the Pamo Company?

A. I was engaged as engineer in charge of the Lake Hemet dam and flume and pipe lines.

Q. Where is that dam?

A. The dam is situated about 25 miles from the town of San Jacinto. It was formerly in San Diego county. It is now in Riverside county.

Q. Had the works been completed before you went there?

A. No, sir.

Q. In what state were they?

A. In regard to the dam, the preliminary surveys for the reservoir site had been made and an approximate location had been made of the dam site. Some of the appliances for constructing the dam were on the ground, and the excavation had been partially made for the dam.

460 Q. Who was the engineer in charge before you?

A. The preliminary surveys were made, part of them, by Mr. Vail and other portions of them by an engineer from Los Angeles; I have forgotten his name at present. At the time that I was employed Mr. Schuyler was the consulting engineer.

Q. Of what size and capacity was that dam and reservoir?

A. The dam was constructed to a height of 110 feet, with a cross-section capable of carrying it up to 150 feet. The capacity of the reservoir at the 150 foot contour was something over eight billion gallons.

Q. Was Mr. Schuyler the consulting engineer during the entire construction of the plant?

A. Yes, sir; he was there sometimes once a month, sometimes once in two months.

Q. Who made the preliminary surveys and estimates as to the capacity of the reservoir and the source of supply, if anybody?

A. The preliminary estimates were made previous to my employment up to the 120 foot contour. Afterwards I made the survey personally up to the 150-foot contour, and from my notes Mr. Schuyler and myself made the computations as to the area.

Q. What was the source of supply?

A. The source of supply is the South fork of the San Jacinto river and what is called Hokey creek, coming from the summit of the San Jacinto peak. These two streams unite in the reservoir, the flooded portion, as it has been and will be.

Q. How long were you in charge of the work of that company?

A. I was employed in December, 1890, and remained continuously in the employ of the company until in the spring of 1892.

Q. Were the works completed when you left the company's employ?

A. Not entirely.

461 Q. When did it commence to supply consumers with water?

A. They were supplying consumers with water prior to the construction of the dam.

Q. In what way?

A. To explain, so it will be plain, I will state that the reservoir has an elevation of about 4,000 feet, and the water is delivered into the natural bed of the stream and carried down the stream for some distance and is there taken up in a pipe line; by means of this pipe line and flumes and ditches is distributed on the land at the upper end of the San Jacinto valley, and prior to the commencement of actual construction on the dam a portion of these pipe lines had been constructed and water was delivered in such quantities and at such times as was available in the streams.

Q. Was that reservoir fed by a living stream?

A. There was water flowing in the stream at all times that I have observed it.

Q. Well, to what extent were they furnishing water to consumers up to the time you left the employ of the company?

A. I could not state the exact number of acres.

Q. Well, could you give us some idea, Mr. Alverson?

A. If my recollection is right, I think they were supplying about 100 inches of water.

Q. Did you have anything to do with the actual delivery and supply of the water or was your work confined to construction?

A. My work was confined to construction, and in that connection I almost entirely planned the sizes of the flume and the system as it was constructed afterwards. Mr. Schuyler was absent during that time, and after I had planned it and it was partially
462 constructed he came there and approved the manner in which it had been built and the general plans.

Q. Where did you go from there, Mr. Alverson?

A. I returned to San Diego.

Q. What employment did you take after that?

A. A portion of the time I was making some surveys and examining water systems throughout the county.

Q. For whom?

A. For different parties.

Q. Well, name them.

A. For the San Diego flume, and looking over to see by what

means they could increase their supply, and also for the Minneapolis Beach Colony Company and the Hedionda Creek Company.

Q. Where is the Minneapolis Beach Company's property?

A. It is at Carlsbad.

Q. Did they do any development there under your supervision?

A. Not so far. Negotiations are pending with them now. I am furnishing them data in regard to the system.

Q. What employment have you had since then?

A. A considerable portion of my time since leaving the Lake Hemet Water Company other than what I have stated has been in the employ of the Linda Vista irrigation district, which is the same system or they are owners of the same system which was formerly the Pamo Water Company; also as engineer in charge at the Escondido dam in this county.

Q. What amount of construction has been done by the Linda Vista irrigation district, of which you were the engineer?

A. There has been very little actual construction. There have been surveys made of the reservoir sites and examinations
463 of the water-shed and sources of supply, and I have made estimates and have drawn plans for different kinds of dams, conduits, and pipe lines.

Q. Well, they have done practically no construction, have they; actual construction?

A. No.

Q. That is worth mentioning?

A. No.

Q. Now, you say you were engineer in charge of the Escondido irrigation district?

A. Yes, sir; at the dam.

Q. For how long?

A. For several months.

Q. Was any water delivered to consumers while you were in charge there?

A. They were just beginning to deliver water when I left.

Q. Then they were not engaged in the delivery of water when you were in charge there?

A. No.

Q. When did you first give any attention to what you call the contributory water-shed of the Sweetwater reservoir?

A. In 1886.

Q. What was the extent of your investigations at that time? I am speaking now of personal investigations, not the procuring of data from outside.

A. I understand. While engaged with the San Diego Flume Company I passed through and over a considerable portion of the water-shed contributory to the Sweetwater river in going to Cuyamaca and other portions of the country, and as an engineer
464 obtained what data I could, and noticed the general character and formation of the country.

Q. What data did you obtain at that time?

A. In crossing the stream at different seasons of the year, some-

times in the summer months and sometimes in the rainy season, I observed the flow of water in the stream and the conditions of the stream these different times in the year.

Q. Anything else?

A. Only the general physical characteristics of the water-shed as regards the surface, whether covered with soil or whether rough, broken, and rocky.

Q. How much of the entire water-shed contributory to the reservoir do you think you actually passed over? Was it more than simply passing thorough it in traveling to and from your work?

A. Well, my work took me on nearly all of the higher peaks and summits, and with the natural eye and by aid of the field-glass I could get a better idea of the general formation of the water-shed than in any other way.

Q. Had the Sweetwater dam been commenced at that time?

A. Well, it was in progress of construction at that time.

Q. In 1886?

A. Not in 1886.

Q. Was not that the date you gave?

A. That was when I commenced, but this period of travel extended.

Q. You are giving now the entire time, are you?

A. Yes; not only then, but since then; the entire time from 1886 until the present time.

Q. Well, can you give anything else as having been discovered by you during that time as to the water-shed and what it would supply?

465 A. Well, I hardly know how to answer that question. I have stated previously that, as an engineer, I always am noticing anything in regard to a particular water system and water systems in general, accumulating data and information.

Q. Well, do you think you can tell, with any degree of accuracy, the amount of water that can be stored from a water-shed of that kind from simply passing through it and over it and examining it by the eye or with glasses?

A. I can, to a certain extent.

Q. Well, to what extent?

A. To arrive at your conclusions in the manner in which conclusions are arrived at on this point, you have to take into consideration the elevation and character of the water-shed, and in that connection the general surface of the water-shed, whether it is rolling, whether it is steep and abrupt, whether it is covered with a heavy growth of vegetation and trees, or if it is rocky and precipitous, and also the general condition of the channel to the point at which you desire to store that water.

Q. Now, isn't it true, Mr. Alverson, that at last an opinion given upon that subject must depend very largely upon data that one obtains outside as to the extent of the rainfall, the actual flow of the stream during the season, and other things that you did not obtain from actual knowledge and investigation?

A. No, sir; I think my information in general is very good on that water-shed, as well as several other water-sheds in this county.

Q. Then you think that, without any reference to the rainfall as shown by water gauges kept for that purpose, you could tell with reasonable accuracy what that water-shed could supply, do you?

466 A. No, sir; I do not claim that nor I do not claim you could if you had the rainfall.

Q. You cannot do it anyway, can you, Mr. Alverson, with any degree of accuracy?

A. Only to a certain extent.

Q. It is largely a matter of guesswork, isn't it, necessarily?

A. Yes. Each water-shed depends upon itself to a certain extent. There are certain elements which enter into consideration which are applicable to all water-sheds, but each water-shed is dependent largely upon its own characteristics.

Q. Isn't it true that you have given your opinion here largely upon what information you have obtained from the testimony of other witnesses here as a basis of your opinion?

A. No, sir; only as to the actual quantities claimed to have been stored.

Q. And that is the most reliable thing at last, isn't it?

A. Certainly; it would be in all cases.

Q. Well, it is in all cases, isn't it, as well as should be?

A. If it is correct.

Q. I say the actual storage, if it is the actual storage, it is accurate, isn't it?

A. Yes; if it is the actual storage, it is accurate.

Q. Do you think, Mr. Alverson, that the opinion given by an engineer, no matter how capable he may be, is worth very much when it comes in opposition to actual experience in operating a system of that kind?

A. That depends a great deal on how the system is operated. If operated on the line on which he bases his calculations, probably his opinion would be of considerable value.

467 Q. Well, you have given your opinion upon the line of the actual experience of this company, haven't you, as a basis?

A. To a certain extent.

Q. To a very large extent, haven't you?

A. On certain matters I have.

Q. Well, what matters in particular and what not?

A. In reference to the storage capacity of the Sweetwater reservoir, and in reference to the total annual evaporation on the surface of the reservoir, and in reference to the length and sizes of the pipe lines and the elevations at which the water was delivered, and in making my estimate as to the duty of the reservoir, I have taken the quantity to which the consumer was entitled per acre as a basis of my calculations.

Q. That is a pure matter of figuring, isn't it?

A. Yes, sir.

Q. It can be done as well by any one else as by an expert?

A. No; it cannot.

Q. Why not?

A. Simply because unless a man is familiar with the rules by which you determine the capacity of pipe lines it is impossible for him to determine the capacity or the amount of water which those pipe lines will deliver at different elevations or the difference in their capacity due to delivering water at different elevations.

Q. Well, if you take the facts established here, that the reservoir has a capacity of five billion gallons of water, that that supply is reinforced to the extent of two billion gallons, and that there is 48 inches of evaporation, and the consumer is entitled to 350,000 gallons of water, it is a pure matter of calculation, isn't it, as to how many acres the reservoir can supply under those circumstances?

A. Those calculations are.

Q. Now, I understand you to say that you think Mr. Savage is in error in his estimate of 58 inches of evaporation in the reservoir.

A. No, sir; I do not.

Q. He is correct in that, isn't he? The only distinction you make is that that quantity should not be charged up against the reservoir, because it is supplied by the flowage of water from above. Is not that so?

A. That was not the way I stated it.

Q. Well, will you be kind enough to state in what respect you differ from Mr. Savage in that particular?

A. In my testimony I stated that assuming the basis that the reservoir is full at the beginning of a season, and that the company is taking water out of the reservoir before it reaches that point, and that evaporation is going on, and yet, notwithstanding the flood waters are sufficient to fill this reservoir, that the amount taken out and the evaporation that occurs during that time should not be charged to the duty of the reservoir.

Q. Leaving out the question as to the amount of water taken from the reservoir or the amount flowing in, what do you say about the extent of the evaporation; do you disagree with Mr. Savage then?

A. No; I would not materially.

Q. In offsetting or reducing the amount of evaporation, do you take into account at all the amount of water that flows into the reservoir or only the water that is taken out of it?

A. In my estimate I take no account of the water that flows into the reservoir after the time at which the water surface reached its maximum elevation, only so far as it would compensate for slight loss, in the case of a pipe line, in transportation and other causes.

Q. If I understand you, on arriving at the duty of the reservoir, you take the full capacity of the reservoir to be five billion gallons to start with. Am I correct about that?

A. No, sir.

Q. What do you take?

A. Five billion eight hundred—

Q. Well, I am stating in round numbers.

A. Yes; in round numbers.

Q. Then you add to that two billion gallons—speaking again in round numbers—that will be replaced by the flowage of water from above. You deduct from that 48 inches for evaporation. You then divide the amount by 350,000 in order to determine just how many acres can be supplied. Is that the mode of arriving at it?

A. Well, in general, it is correct.

Q. If I have not stated it correctly, explain.

A. The evaporation is determined by the average area of exposed water surface, not the entire area.

Q. I understand that.

A. With that exception it is, I believe, correct.

Q. Have you made any deduction in that estimation for wastage or loss after the water leaves the reservoir?

A. I have not, for—

Q. Well, you have not, have you?

470 A. No; I have not. That is for the reason that in the case of a pipe line that is in good condition, and kept so, there should be very slight loss from leakage or evaporation.

Q. Do you think, then, that practically every inch of water that leaves that reservoir can be carried to and supplied to the lands, and that no deduction should be made for either leakage or wastage in the hands of consumers?

A. There is some slight deduction made.

Q. Well, you have had no actual experience in supplying water to consumers, have you, personally?

A. Personally I have not. Let me explain.

Q. Certainly. Go on, Mr. Alverson.

A. During all these years I have obtained data from superintendents and from men in charge of the distribution of water and of the methods in which the water is distributed and in the manner in which the irrigator used the water and other information, for the purpose of determining as near as I could the duty and best way of distributing water.

Q. That has been purely a matter of hearsay and not personal experience?

A. It is not hearsay.

Q. Why not?

A. That is, in the true sense of the word, because it is taken and based on information which it is reasonable to suppose is correct.

Q. Do you know anything about what the percentage of loss is in supplying consumers on account of the wastage and over-use by consumers themselves?

Mr. GIBSON: Objected to as incompetent, irrelevant, and
471 immaterial. It is no concern of the company what the consumer does with his water after it is delivered to him, and the company is not bound in delivering water to allow for any shortage or wastage on the part of the consumer.

A. There is no regularity; it depends upon the character of the

conduit through which the water is conveyed, the manner of measuring the water, and whether the seller of the water allows the consumer to use more than he is entitled to.

Q. Do you remember of having obtained the information from the superintendent or manager of any company at all similar to the land and town company with reference to this particular matter?

A. Do you refer to the loss due to the transportation of water and the distribution of the same?

Q. Loss after it leaves the reservoir; yes, sir.

A. The principal information in southern California in regard to that I have obtained not from the superintendents themselves, but from their reports and the reports of the State engineer and the Hemet water works, by personal observation, and by the information of the superintendent of water I obtained data on those points.

Q. Do you remember with reference to what companies?

A. The companies in Riverside and San Bernardino counties.

Q. In those cases their supply of water is furnished almost entirely from living streams and mainly through open ditches, is it not?

A. By various ways. A portion of the lines are open ditches; some of them paved and some of them unpaved. Some of them are pipe lines a portion of the way; a lot of them the pipe lines are in good condition; others leak.

472 Q. In arriving at your estimates, Mr. Alverson, did you take the statements as to the yield of the water-shed as it has been testified to here by Mr. Savage?

A. I did; with the reservations as regards evaporation which I have stated.

Q. Well, as to the actual yield of the water-shed you did take his statement?

A. In general.

Q. Well, in general—in what particular did you go beyond it?

A. Only in regard to the amount of evaporation that should be charged to the reservoir or the available duty of the reservoir and the water that was flowing into the reservoir after it had reached its maximum elevation.

Q. Well, if you take the testimony of Mr. Savage as to the actual yield of the water-shed, what had your own knowledge or investigations as to the water-shed to do with it?

A. It furnished me a general idea of the characteristics of the water-shed and the probable yield.

Q. That simply confirmed what Mr. Savage had said about it, did it?

A. Well, no; the yield of the water-shed is lower than it should be as compared with other water-sheds on the Pacific slope.

Q. Then to that extent you have not taken his statement; you have taken your own judgment of it rather than his statement?

A. No; not in my calculations.

Q. Will you be kind enough to answer whether you have or have

not taken his statement as the basis of your estimates here so far as the mere yield of the water-shed is concerned?

A. I have.

473 Q. I understand you to say that for the year 1893-'4 the actual yield was probably five hundred million gallons, but you take an ordinary or average year as a basis for your calculations, do you, in taking two billion gallons as the amount by which the reservoir is reinforced?

A. I have not taken the average year. I took the approximate quantity as given by Mr. Savage as the storage since the construction of the Sweetwater dam, except in the winter of 1893-'94.

Q. Then, in your judgment, an extremely dry season ought not to be taken into account in an estimate of this kind, because to provide for such a year would be bad engineering?

A. Where the water is used largely for irrigation I would not. If it is used principally or entirely for domestic use, then the conditions might change.

Q. Then you think the company ought to conduct its business in such way that if an extremely dry year comes the consumers or some of them must suffer for the want of water?

A. In order to answer that question clearly I will have to make some explanation.

Q. Go on.

A. As I stated, a year like the winter of 1893-'4 is not liable to occur oftener than about once in twenty years. If you take the next lowest storage which is obtainable from the best data, then figuring on that basis and making your calculations subject to those conditions, you have provided for nineteen years out of twenty. In the case in question if you were to use the full supply which you considered safe the first year, based on the minimum storage being about two billion gallons, and at the beginning of the irrigation

474 season of the second year, in which there had been a year like that of the winter of 1893-'4, you found that you would only store the amount of water given as about five hundred million gallons, then you would have to reduce your supply to the irrigator about one-third. My reason for considering that a company should not be required to provide against an extraordinary year is that it is more economical for the consumer to have a good crop for nineteen years and have a short crop the twentieth, and receive his water for a less price, than to pay more for his water during the entire period covered by the twenty years. If the full amount of water which the consumer is allowed in this case is sufficient to irrigate his land and the crops which he raises, then if that is reduced one-third for one year his crop may be short for that year, but his trees or plants are not permanently damaged, no more than they are if a tree bears a large amount of fruit one year and exhausts its strength and it has to rest the next year. The second year it is as good as it was before.

Q. How would you manage in a case of that kind, Mr. Alverson, to make a reduction equal to all consumers in the absence of a universal use of meters?

A. In distributing water it necessarily follows that you must or should have some system of measuring that water approximately, and you can measure two-thirds of the amount of water as well as you can measure three-thirds, whether by meters or other means.

Q. You have given your opinion with reference to the difficulty of supplying water to the higher lands under this system at some length. I infer from what you say that the substance of your opinion is that for the company to attempt to supply water to lands, say at the elevation of 160 feet or higher, would be detrimental to
475 the consumer generally?

A. It certainly reduces the capacity of the system, and in order to deliver its water there it would necessarily entail an additional cost.

Q. In other words, you would have to have a system that would furnish a larger pressure in order to reach those elevated lands—by enlarging your pipes or otherwise?

A. In the case of the Ex-Mission tract and the tracts in Otay in this case that would be the result.

Q. That would be the result in any case. The greater the pressure the larger your pipe must be, as a rule?

A. As a rule.

Q. From your knowledge of the system there and what you have heard in reference to it, do you think it would be advisable or economical for the company to attempt to supply water above the 140-foot contour line, in justice to the consumers as a whole?

A. Not continuously. They could supply, a portion of the time, water to a greater elevation without injuring the consumers, probably, to a great extent.

Q. That would make it necessary to make their supply intermittent, wouldn't it?

A. It would.

Q. And to that extent it would be detrimental to the consumer?

A. To either make it intermittent or, in the case of an extreme dry year, to reduce the quantity of water furnished to consumers.

Q. And in either event it would be to that extent detrimental to the consumer generally, wouldn't it?

A. If that were the case every year or every two or three years, it would be, but in the case which I have testified to, once in
476 twenty years, I do not think it would.

Q. Well, do you think it would be good policy for the company, in justice to its consumers generally, to attempt to furnish water to that elevation where there are lands needing water below that level?

A. No; I should not. I desire to answer that question a little more fully.

Q. Certainly, if you want to explain.

A. The elevation to which water can be delivered under the Sweetwater system in an economical manner—and this is true in any pipe system—is dependent on the elevation to which you deliver the water and the elevation of your supply or intake. In the case of the Sweetwater system, with the water at the lower elevations

in the reservoir, there is not a great difference between that and the elevation to which you supply the water; and in constructing any system of pipe works it is necessary and is important in a pipe system to take this into consideration, the difference of elevation between the point of delivery and the supply, and there is a limit to which you can deliver water economically, as I have shown in my previous testimony in the case of the 30-inch pipe. At one elevation it delivers less than one-third of what it would at another elevation, and the elevation to which it is economical to deliver this water depends upon the amount of land you are irrigating and the length of your pipe lines and the distance from your supply, and for these reasons, in my judgment, I do not consider it advisable nor proper to deliver water to a higher elevation than 140 feet in the further portions of National City and Chula Vista.

Mr. WORKS: That is all.

477 By Mr. GIBSON:

Q. In giving your experience with the Hemet dam or reservoir company did not your duties consist in directing the construction of the dam and ascertaining the capacity of the reservoir at various elevations and contours?

Mr. WORKS: We object to the question on the ground that it is leading.

A. It did.

Q. Of what does the duty of a hydraulic engineer principally consist—digging the trenches and putting the pipes in place or laying out and planning the work and ascertaining the capacity of pipes and the means of delivering water into them and distributing water from them?

A. The duties of a hydraulic engineer are various.

Q. Give us some of the duties that he is supposed to perform.

A. The first thing necessary is to determine the uses to which the water is to be applied; then to consider the quantity of water that it is necessary to develop, the quantity of water which in his judgment and from data obtainable can be developed in an economical manner, and, knowing the use for which the company proposes to use the water, he plans and constructs the system, specifying the kind of conduits, class of material, and after construction begins he superintends the work in general and sees that it is carried out in accordance with what he considers good engineering.

Q. Well, it is all dependent, isn't it, upon a knowledge of the means for impounding or receiving water and distributing it to the places and persons where it is used?

A. It is on his general knowledge and upon data obtained
478 from engineering and scientific works and the result of works in different portions of the country.

Q. What business was the San Diego Flume Company engaged in when you worked on its conduit?

A. They were engaged in the development of water and the con-

struction of conduits for the purpose of conveying that water to lands lying under the system.

Q. Well, have they since distributed water through those works or any portions of them?

A. They have.

Q. And are they still doing so?

A. They are.

Q. What was the water delivered from the Hemet reservoir used for?

A. It was used for irrigating lands in the upper portion of the San Jacinto valley.

Q. Well, is it not also used for domestic use?

A. It is.

Q. How is that conveyed to the places of use—in open ditches wholly or in pipe lines?

A. It is conveyed in pipe lines, paved ditches, and flumes.

Q. What is the water from the Escondido reservoir used for?

A. It is used for irrigating the lands in the Escondido irrigation district and for domestic use in Escondido and by the inhabitants occupying the lands in the district.

Q. What do you say the capacity of the Hemet reservoir is?

A. It is something over eight billion gallons at the 150-foot contour. If you desire, I can get you in a moment the estimated quantity.

479 Q. Never mind. Of what did your work consist in connection with the Pamo reservoir?

A. It consisted in surveys of the reservoir and examination of the water-shed, the running of lines to determine the most feasible and best rout-s, and in the location of about eleven miles of land from the Pamo reservoir—

Q. Line of what?

A. Flume line and pipe line from the Pamo reservoir to what is known as Winn's pass, and the running of preliminary lines to the city of San Diego and in various directions to determine the most available route and the elevations of the different summits, passes, and other data which it is necessary to obtain in order to construct the system in a proper manner.

Q. Did it comprise the location of a dam site and the preparation of plans for a dam? If so, state.

A. I drew up several plans, some of them based on a masonry dam, some on a loose rock-dam, with different cross-sections; also—which I omitted in my testimony-in-chief—there was considerable excavation made at the dam in order to determine how far we would have to go to get to bed rock. I also took measurements, gauged the stream, the flow of water at different times during the year.

Mr. GIBSON: I believe that is all, Mr. Alverson. We may think of something hereafter.

It is stipulated by the parties hereto that the complainant in the months of September, 1886 and 1887, caused to be posted and recorded, pursuant to the provisions of title 8 of the Civil Code of

the State of California, notices of the appropriation of 5,000
480 miners' inches of water of the Sweetwater river for sale, rental,
and distribution to the public, including the city of National
City and its inhabitants, for irrigation of the lands under the flow-
age of its reservoir, and for the domestic and other beneficial uses
and purposes of the people there residing and who should reside on
said lands and in National City, and that the complainant is still
the owner of said water by virtue of said appropriations and not
otherwise, and that this Sweetwater river referred to is the Sweet-
water river upon which the reservoir mentioned in the testimony
heretofore is located.

It is admitted that within the limits of said city of National City
complainant has laid its main and pipes in the public streets of said
city under and pursuant to a franchise granted to complainant by
said city on the 29th day of February, 1888.

Mr. GIBSON: Defendants now offer the reports of the San Diego
Land and Town Company, made by its president and general man-
ager to the stockholders, during the years 1887, 1888, 1889, 1890,
1891, 1892, 1893, and 1894.

Mr. WORKS: To all and each of which the complainant objects on
the ground that the same and each and all thereof are immaterial,
irrelevant, and incompetent.

Mr. GIBSON: Now, will you have it understood and so express
in the record that subject to your objection we may read from cer-
tain portions of the report and put it in the record instead of at-
taching them as exhibits?

Mr. WORKS: Yes, sir.

Mr. GIBSON: As we have already read from portions of the report
of President Lawrie, dated at Boston, April 5th, 188-, we will begin
now with report of Benjamin Kimball, president, dated at
481 Boston, April 20th, 1889, on page 12, found in the report dated
December 31st, 1888, which is as follows:

"Probably the most important achievement of the year has been
the completion of the Sweetwater dam, with its reservoir of 700
acres in extent and its pipe-line system, distributing an ample sup-
ply of water, under pressure, for business and domestic uses and for
irrigation throughout National City and Chula Vista and over about
two-thirds of National ranch. This has successfully solved the
problem of the irrigation of this property, has already invited ex-
tensive settlement and planting, and has enabled your company to
offer for immediate sale and occupancy the most desirable lands for
fruit culture in southern California."

And on page 13 of the same report:

"The water system has been and is now administered as a depart-
ment of the work of this company. Separate accounts, however,
have, of course, been kept, and these show that the income from the
sale of water is today about equal to the cost of maintaining the
system. As settlement proceeds, however, the sale will increase,
and will in the near future be a substantial source of income."

Now, we will say right here, in connection with the reports, there
is on different pages of them the statement of the accounts of their

water department, the credit, and the contra. Instead of reading that we will let the reporter tabulate that under one heading.

Mr. WORKS: All right, subject to our objection, of course.

The report is as follows:

"San Diego Land and Town Company, water department, Cr.

482 By rent account..... \$3,991.31

CONTRA.

Maintenance of pipe line.....	\$1,069.72	
Maintenance of Sweetwater dam.....	812.03	
Service.....	379.72	
Expenses.....	1,156.07	
		<u>3,417.54</u>

Balance to credit, Dec. 31, 1888..... \$573.77"

Mr. GIBSON: On page 9 of President Kimball's report, dated at Boston, April 22nd, 1890, and found in report dated December 31, 1889, is the following:

"The rentals from the water system have increased, and show for the year 1890 a surplus over expenses of \$4,663.57, as against a surplus of \$2,344.37 for the year 1889."

"The assurance of water has stimulated enquiry for land, and sales have materially increased since this settlement."

On page 23 is found the account of the water department as follows:

San Diego Land and Town Company, water department, Cr.

By balance, Dec. 31, 1889..... \$2,918.14

" rent account..... 12,679.05

\$15,597.19

CONTRA.

Service.....	\$116.32	
Maintenance of pipe line.....	4,651.30	
Maintenance of Sweetwater dam.....	1,557.43	
Expenses.....	1,690.43	
		<u>8,015.48</u>

Balance to credit, Dec. 31, 1890..... \$7,581.71

483 On page 23 of President Kimball's report, dated at Boston, April 12, 1892, and in the report dated December 31st, 1891, is found a statement of the water department account as follows:

San Diego Land and Town Company, water department, Cr.

By balance Dec. 31, 1890..... \$7,581.71

" rent account..... 17,451.73

\$25,033.44

CONTRA.

Service	\$232.32
Maintenance of pipe line.....	5,150.29
Maintenance of Sweetwater dam.....	4,226.83
Expenses	<u>3,393.02</u>

Balance to credit, Dec. 31, 1891..... \$12,030.98

On page 5 of President Dwight Braman's report, dated at Boston, April 11th, 1893, and found in the report of December 31, 1892, is the following:

"The water system, costing about \$1,000,000, earned last year about seven-tenths of one per cent. on the capital invested. The company collected about \$20,000 in rentals from 700 water-takers, and irrigated 2,300 acres of land. Under the laws of California allowing annually six per cent. on the capital for return, five per cent. for depreciation and the operating expenses, the company legally could have collected \$122,000. We have endeavored to remedy this somewhat by charging for a water right on lands not owned by the company at the rate of \$50 per acre, and have already sold rights for about 100 acres. We have water enough to supply about 7,700 acres in addition to that already supplied, and our income from this source the next few years should be consider-

484 able. The pipe system, when laid, was far ahead of the demands, and much of the pipe has laid unused and decaying. Some of this, we regret to say, is absolutely useless, and, as water is needed, will have to be replaced, in view of which our engineer has been making a thorough and careful examination of the water systems of Denver and through Colorado, and we are of the opinion that wooden pipes must be used extensively, as the alkali in the soil destroys the steel and iron pipes by wearing through them. This item and the expense of reinforcing present mains to reach and supply newly planted orchards will call for a considerable expenditure, yet we propose to make the water department self-supporting and no longer a tax on the land company by having would-be water takers share either in the cost of the system or else pay a proportionate royalty. Of course, this new departure met with considerable opposition at first from the people out there who were contemplating taking water, but when our position becomes fully established and they know full well it will be impossible for this company to give its water away longer they will believe the charge of \$50 an acre water-right a most moderate one."

And on page 25 is found the report of the water department as follows:

San Diego Land and Town Company, water department.

By balance, Dec. 31, 1891.....	\$12,030.98
" rent account.....	<u>18,907.10</u>
	\$30,938.08

CONTRA.

Service	\$677.78	
Expenses	2,628.61	
Maintenance of pipe line.....	6,409.38	
Maintenance of Sweetwater dam.....	1,643.40	
		<u>11,359.17</u>
Balance to credit, Dec. 31, 1892.....	\$19,578.91	
485 Income for year 1892....	18,907.10	
Expenses.....	11,359.17	
		<u>\$7,547.93</u>
Net income for 1891 was.....	4,449.27	
		<u>3,098.66</u>

And on page 5 of President Dwight Braman's report, dated at Boston, March 30, 1894, found in report dated December 31, 1893, is found the following:

"The water system, costing about \$1,000,000, has been enlarged and improved, and is now taxed to its utmost capacity. With our present system we now irrigate 3,300 acres of land and have about 800 water-takers of our system. Being planned on a size to irrigate 10,000 acres, we find, through oversight and miscalculation, that but 3,300 acres taxes it to its utmost; therefore we advise at once the construction of a \$60,000 wood main, 40 inches in diameter, to irrigate the remaining 6,700 acres."

And on page 11 is found the following:

"To supply all the water that is required, it will be necessary to construct a main from the dam along the north side of Sweetwater valley of sufficient size to reach all of the lands that lie low enough to be irrigated, and would include a large area in the eastern part of the city and north of Keene valley. The construction of this main is of the first importance, both to enable us to make sales as well as to plant additional lands."

And on page 23 is found the account of the water department, which is as follows:

486 San Diego Land and Town Company, water department.	
By balance December 31, 1892.....	\$19,578.91
By rent account, 1893.....	22,255.86
By service account, 1893.....	2,315.20
	<u>\$44,149.97</u>

CONTRA.

Expense.....	\$2,913.91	
Maintenance pipe line.....	6,609.19	
Maintenance Sweetwater dam.....	1,887.38	
		<u>11,410.48</u>
Balance to credit, December 31, 1893.....	\$32,739.49	

Income for year 1893.....	\$24,571.06
Expense for year 1893.....	11,410.48
Net income for year 1893.....	\$13,160.58
Net income for year 1892.....	7,547.93
Increase 1893 over 1892 (74%).....	\$5,612.65

In the report of President R. P. Cheney, Jr., dated at Boston, March 30th, 1895, found in report dated December 31st, 1894, on page 4 is found the following:

"As will be seen from a comparison of the treasurer's report with previous years, certain accounts have been written off to profit and loss, and the depreciation on other accounts charged off. Upon examination of his report (statement of income account), it will be noted that Boston office expense, general expense, National City, and advertising are much greater than last year. About \$20,000 of the former account was incurred in making unavoidable settlements of old accounts. About \$3,000 of advertising account was incurred prior to the economies above noted, made on July 1, 1894. General expense, National City, is increased also by the charging off of old accounts."

And on page 8 is found the following:

"Although 1894 was one of the driest experienced in twenty years, at the end of the season we had sufficient water to
487 carry us through another year. We were one of the few irrigation companies in the State that did not have to feel concern as to its water supply, and this year the heavy rains of January so saturated the ground that the river still continues to run a heavy stream, and insures us more than a full supply."

On page 19 is found the account of the water department, which is as follows:

San Diego Land and Town Company, water department.

By balance, December 31, 1893.....	\$32,739.49
By rent account.....	24,564.67
By service account.....	245.30
	<u>\$57,549.46</u>

CONTRA.

Expenses.....	\$2,656.02
Maintenance of pipe line.....	3,505.03
Maintenance of Sweetwater dam.....	1,689.13
	<u>7,850.18</u>
Balance to credit, December 31, 1894.....	\$49,699.28
Income for 1894.....	\$24,809.97
Expenses for 1894.....	7,850.18
Net for 1894.....	<u>\$16,959.79</u>

It is admitted, subject to the last objection, that the company increased its capital stock 50 per cent., or \$750,000, making it in all \$2,250,000, increasing the number of shares from 15,000 shares of the par value of \$100 each to 90,000 shares of the par value of \$25 each, and the capital stock now stands at the latter amount. The increase was made in June, 1887.

An adjournment is here taken until nine o'clock tomorrow morning, Thursday, October 17th, 1895.

488 THURSDAY, *October 17th*, 1895—Morning session.

It is admitted that, from the commencement of the furnishing of water by the company, the company furnished and offered to furnish water to consumers at the rate of \$3.50 per acre per annum for irrigating purposes up until December, 1892, without charging or demanding compensation for a water right, and that from December, 1892, until February, 1895, the company demanded from consumers other than those to whom it had sold lands, and also others than those holding lands to whom it had furnished water prior to December, 1892, \$50 per acre for water furnished for irrigation purposes, for a water right, in addition to the annual rental, and from February, 1895, the company has demanded from consumers, for water furnished for such purposes, \$100 per acre, for a water right, in addition to the annual rate.

W. C. KIMBALL, being called as a witness for the defendants and being duly sworn by the special examiner to testify the truth, the whole truth, and nothing but the truth in this cause, now testifies as follows:

By Mr. GIBSON:

Q. Please state your name.

A. W. C. Kimball.

Q. Residence?

A. National City.

Q. Age about—

A. 66 years old.

Q. Your occupation, Mr. Kimball?

489 A. Well, I do not really know what to say; I am doing everything. They put me down in the great register as hustler. I do various things; more in the horticultural business than anything else.

Q. You have given your attention to horticulture for a good many years, have you not?

A. Yes, sir.

Q. And that is your principal business?

A. Yes, sir; that is my principal business.

Q. How long have you resided at National City?

A. Permanently since 1870.

Q. How long has your brother resided there?

A. Since the fall of 1868.

Q. Have you been familiar with the territory known as the National ranch?

A. Supposed to be.

Q. And the contiguous territory?

A. Yes, sir.

Q. And the Sweetwater valley?

A. Yes, sir.

Q. Since that time—since 1870?

A. Yes, sir.

Q. Did you ever visit the Sweetwater river?

A. Yes; a good many times.

Q. Prior to the building of the dam?

A. Yes, sir.

Q. Did you have any occasion to observe the water supply in that river?

A. I did.

Q. State why you made such observations.

490 A. We kept sheep there for a good many years prior to the building of the dam.

Q. You say we; who do you mean?

A. My brother and I.

Q. Is that your brother Frank?

A. Yes; and, of course, we were up and down the river. In the fall of the year we had to look out for the best places, of course, for the sheep to graze on the dry feed; consequently I was pretty well posted on where the water was in the river.

Q. State the character of the Sweetwater river with reference to its flow above and below the location of the present dam prior to the erection of the dam, and particularly during what is called the dry season.

A. Well, above the dam I never knew the water in any year but what the water was running there where the present reservoir is and down through the canyon. Down below the canyon, of course, it struck into that sand and, of course, sank. Then it would come down below towards Bonita and then it would crop out again; striking bed rock, I suppose, threw it up higher, but I never saw the time since 1868, and I was there at that time, and I never saw the time—I used to cross it, of course, often, having sheep and being up that way—but what you could water a horse in that stream above the dam.

Q. How far above the dam?

A. Oh, three-quarters of a mile, I should say, or more; maybe a mile, where we used to make the old crossing going up to Jainacha ranch.

Q. How was the flow of the river during a rainy season?

A. Oh, of course, there have been some years perfectly
491 enormous and other years, of course, there has been—in the dryest years there has been very little water. There has been years since I have been here that it has not flowed to the bay.

Q. How many years has it flowed to the bay?

A. I could not say certainly, but there has been, I think, two

years in succession that it did not flow to the bay, and then there has been years since that time and in the meantime that it has flowed to the bay in a big stream.

Q. The point you refer to as Bonita, below the dam, how far is that below the dam?

A. I should say two miles or two miles and a half, at a rough guess.

Q. How much water was found at that point during the dry season?

A. Enough so we had good water for three or four thousand head of sheep that we used to run on the ranch.

Q. Was that true every year or only exceptional years?

A. We never had but one year, and that was not for the want of water. We had one year that we had to drive the sheep below the line on account of feed, but there was water in the stream.

Q. What line do you refer to?

A. Down into Mexico. That is below the boundary line of the United States.

Q. Into Mexico?

A. Yes, sir.

Q. With reference to water below the present site of the dam during the summer season, how much flowed there during the seasons when it was the highest?

A. Well, I think this season was one of the best seasons.

Q. What season do you refer to?

492 A. In 1868, at the time, I say, we went in there and bathed, on the 5th day of July (referring to a conversation just had with counsel).

Q. Was the water deep enough to swim in?

A. We put up a little bit of a board, kind of in this way, which, of course, checked the water somewhat, so that I think the water was a couple of feet deep in there. It was running across the bed of the stream—of course, not deep, but there was a stream there.

Q. How wide?

A. I should say a rod wide or more.

Q. At what point below the present dam site was that?

A. Well, it is on National avenue, just a mile—I mean on Highlands avenue—just a mile from National avenue—right up the river.

Q. How far below the dam towards the bay?

A. About five miles.

Q. Can you state how many years the water reached the bay?

A. Well, I should say there had been since 1868 perhaps five or six years that it did not run clear to the bay. Of course, it ran down near there, but, of course, being sand there, it would sink before it got there.

Q. What bay do you refer to?

A. San Diego bay.

Q. What was the character of the country, or, rather, the condition of the territory known as National ranch, and the contiguous

territory in 1880 and 1881 with reference to settlement and cultivation?

Mr. WORKS: Objected to as being immaterial, irrelevant, 493 and incompetent.

A. Why, of course, there was a small amount up to that time. There was a good many places—not a good many as compared to today—there must have been, up the Paradise valley and other places, I think, below the Sweetwater, down on the Chula Vista tract. Those, of course, were cultivated by wells. I guess all the places up by Paradise valley, all the places improved there now, were improved by wells—that is, started by wells—the best of them.

Q. Well, were the settlers few or many during those years?

A. Few.

Q. About how many in the aggregate? _____

A. Oh, I suppose we had there in '82—there might have been five hundred—

Q. I am speaking about '80 and '81.

A. There might have been five hundred people in the vicinity of National, I should say.

By permission of counsel, Mr. Kimball is withdrawn temporarily, that Mr. Boyd may be sworn and testify.

494 LYNN BOYD, being called as a witness for the defendants and being duly sworn by the special examiner to testify the truth, the whole truth, and nothing but the truth in this cause, now testifies as follows:

By Mr. GIBSON:

Q. Mr. Boyd, state your name, age, and residence.

A. Lynn Boyd is my name; age, 34; residence, National City.

Q. What is your occupation?

A. Druggist.

Q. Are you familiar with the stream known as Sweetwater?

A. Why, fairly so. I have crossed the stream a number of times.

Q. Have you crossed it this season?

A. Yes, sir.

Q. State when.

A. It was on the 9th of this month—Wednesday, the 9th of October—in the morning.

Q. At what point did you cross it—above or below the reservoir?

A. Above the reservoir.

Q. About how far above the upper end of the reservoir?

A. It was the crossing of the road that crosses the Sweetwater leading from Jamul valley to San Diego, the direct road, I should judge seven miles, perhaps, above the dam and three or four miles above the upper end of the lake; I should imagine so; I do not know exactly.

Q. By the lake you mean the reservoir, do you?

A. Yes, sir.

Q. State whether you found any flowing water there or not.

A. Yes; we did at that time.

495 Q. About how much?

A. The stream was, in my recollection—I did not pay any particular attention to it at all; I was simply out hunting, and my recollection was that it was perhaps three or four feet across, maybe more, and pools standing here and there; but I would like to state in connection with that, if I can, that that was early in the morning, and a stream of that kind—I have noticed that those streams very often will be flowing in the morning, and as the sun comes out later on they are not flowing. I noticed that in particular, because Mr. Palmer spoke to me of it some time ago, after I was up there; some one told him I had been up, and he asked me about it, and I was across it again last week in the morning of the day and found no water?

Q. At the same point?

A. At the same point; yes, sir.

Q. Then you have noticed the characteristic you have referred to of similar streams is that they flow at night, but not in the daytime?

A. Yes, sir; after the sun has gone down at night the water begins to rise, and you will find them running early in the morning if the stream is not very large.

Q. Are there not places where they flow during the daytime?

A. Well, I could not say as to that. I only crossed the stream at this one point.

No cross-examination.

496 H. A. HARBAUGH, being called as a witness for the defendants and being duly sworn by the special examiner to testify the truth, the whole truth, and nothing but the truth in this cause, now testifies as follows:

Mr. GIBSON: We desire to put Mr. Harbaugh on as to the question of notice.

Mr. WORKS: That is as to the service of the notice requiring us to make the annual showing?

Mr. GIBSON: Yes.

Mr. WORKS: There is no dispute about that. We can agree upon it, I guess. I will admit the fact that these individual defendants, in their organized capacity as the board of trustees of said city of National City, did in December, 1894, in advance of the passage of the ordinance in the complaint set forth, pass and cause to be communicated to complainant the resolution in words and figures as follows:

Resolved by the board of trustees of the city of National City, State of California, That the San Diego Land & Town Co., a corporation engaged in supplying water to the said city of National City and the inhabitants thereof, be, and the same is hereby, re-

quired to furnish to the board of trustees of said city in the month of January, 1895, a detailed statement, verified by the oath of the president and secretary of such corporation, showing the name of the water-rate payer, his or her place of residence, and the amount paid for water by each of such water-rate payers during the year preceding the date of such statement and an itemized statement of

expenditure made for supplying water during said time;
497 also to accompany such statement with a detailed statement, verified in like manner by the oath of the president and secretary of such corporations, showing the amount of money actually expended annually since commencing business in the purchase, construction, and maintenance respectively of the property necessary to the carrying on of its business, and also the gross cash receipts annually for the same period from all sources.

That the clerk of this board be, and he is hereby, directed to transmit a copy of this resolution to the said San Diego Land & Town Company.

By Mr. GIBSON:

Q. State your name, age, and place of residence.

A. H. A. Harbaugh; age, 40; I reside in National City?

Q. What is your connection with the city government, if any?

A. City clerk.

Q. What connection did you have with it in December last, if any?

A. City clerk.

Q. And you have been such ever since?

A. Yes, sir.

Q. What did you do with the resolution passed by the board of trustees of the city in December, 1894?

Mr. Works: We admit that it was served on the assistant treasurer of the company.

Q. On what date was it served?

A. The 10th day of December, 1894. The meeting was held on the 5th day of December, on which the resolution was passed.

Q. I will ask you the question, On what date was that resolution passed?

498 A. On the 5th day of December, 1894.

Mr. Gibson: Judge Works, you have already got one statement in here as an exhibit, and we do not care to duplicate it. This I will show to the witness to refresh his memory. It is the one that was filed by you March 20th, 1895, the verified statement, verified by your president and secretary.

Q. You will state, Mr. Harbaugh, what the San Diego Land and Town Company did, if anything, after that resolution was served upon them.

A. They filed a copy of statement on February 20th, 1895, which was not verified by the president or secretary of the company.

Q. What copy do you refer to, the exhibit marked 2?

A. Yes, sir.

Q. What was done afterwards with regard to furnishing a statement or anything?

A. On March 20th they filed a statement verified by the president and secretary of the company.

Q. March 20th of what year?

A. 1895.

Q. What was done upon February 20th, 1895, if anything, with reference to the consideration of the statement by the board of trustees that was submitted by the company with reference to Exhibit 2?

A. I would have to refresh my memory from the records.

Q. What was done, as nearly as you can remember?

A. Well, if that is the correct date, if I recollect right, they discussed the statement some little bit and then adjourned—took a recess. That is pretty hard to state. There were three or four meetings a month that way, and of course you cannot—but
499 my impression is that after considering this statement they adjourned—took a recess, at least—and afterwards reconvened and passed the ordinance.

Q. What ordinance do you refer to—No. 118?

A. I could not tell that without looking at it.

Mr. GIBSON: I suppose it is 118, Judge Works?

Mr. WORKS: Yes.

WITNESS: It is the water ordinance for 1895 to take effect July 1, 1895.

Q. What statement do you refer to as having been considered, the one that is marked Exhibit 2?

A. Yes, sir.

Q. What number is the ordinance you refer to as having been passed on February 20th, 1895?

A. Ordinance No. 118.

Mr. GIBSON: That is all, Mr. Harbaugh.

Cross-examination.

By Mr. WORKS:

Q. How long was this statement under discussion, Mr. Harbaugh?

A. That would be pretty hard for me to state without looking at my minutes and refreshing my memory.

Q. Give your best recollection about it.

A. Well, to be sure, I should say three or four hours.

Q. What was said during that discussion as to the statement?

A. Why, the trustees studied the statement considerable and discussed the point of how much was allowed to National City—that is, as to their proportion of the expenses, and so on—a general discussion.

Q. What basis did you take in fixing your rates?

500

A. Well, I did not fix the rates.

Q. Well, the trustees.

A. Took the basis of that statement, I should judge.

Q. Are you sure about that?

A. I think so; yes, sir.

Q. What did they find from that statement was necessary in order to pay the operating expenses of the company and pay its interest?

A. I do not know, I am sure.

Q. Did they arrive at any conclusion of that kind or did they discuss that question?

A. It was discussed. Exactly what the basis was I am not able to say.

Q. Can you say that there was any?

A. I think they discussed the point more of the water right than anything else.

Q. Isn't it true that they simply came to the conclusion that the ordinance should be substantially as it was before, that the company had consented to that ordinance previously, and that they would pass the same one again?

A. I do not know what their conclusions were. That is the way they voted. They passed the ordinance.

Q. Well, that was what they said, wasn't it?

A. Yes; I think that was about the substance of it.

Q. That was about the conclusion they came to?

A. Yes; I think so; that the ordinance had always been satisfactory to the company, and that they would pass it in that way.

Q. As a matter of fact, they did not undertake to figure out the basis or the amount that would be realized by the company
501 or whether it would make the company interest or not, did they?

A. I do not think—if I remember right, the company themselves or their representatives—I do not know whether it was Mr. Savage or Mr. Boal—consented to the ordinance as it was except the water-right clause.

Q. That was the year before, Mr. Harbaugh. They were not present at this time at all, were they?

A. I am not so sure. I am inclined to think it was this year.

Q. They were not there at the time this ordinance was passed or at the time this report was discussed, were they?

A. I think they were in the meeting that day.

Q. Are you sure about it?

A. No, I am not; no, sir; but my impression is that some one of them was there.

Q. Do you know which one it was?

A. I do not. I am inclined to think that Mr. Savage and Mr. Boal were both there.

Q. But you say you are not sure about that?

A. No, sir.

Q. Could you tell us, Mr. Harbaugh, from your knowledge of the discussion that took place and what was said there, upon what basis these rates were fixed with reference to the amount that would be realized to the company, the amount of its operating expenses, and

the amount of interest that might be derived from the rates fixed, if you know?

A. No; I do not remember anything particularly about that, except the thought that the water company had not allowed the city the due proportion—that is, that they were charging too much for expenses. You see, this is not segregated, this statement.

502 The city—

Q. It is not required to be, is it, by law?

A. I do not know, sir. You are probably more competent to tell than I am on that point.

Q. When was this ordinance No. 118 drawn?

A. That would require a reference to minutes, but it certainly was drawn and read five days before this meeting.

Q. Was any change made in the ordinance after discussing this report?

A. That is something I could not state without reference.

Q. It is a fact that before this discussion took place in reference to this report that the ordinance had already been prepared by the committee for adoption before this statement was discussed at the time you speak of?

A. I am inclined to think it was.

Mr. WORKS: That is all.

WITNESS: The natural inference is that the ordinance was passed the same day the statement was filed.

Q. The copy that was filed was an exact copy of this, wasn't it?

A. This is the copy that was filed that day.

Q. You say the one that was verified by the president was filed later. You had previous to that the exact copy of it?

A. I had this copy except the signatures.

Q. Well, it was verified by different persons, wasn't it?

A. I do not think it was verified at all.

Q. It appears to be. If that is the one you had, it is verified by Mr. Lanning and somebody?

A. Yes; it was, too, by Mr. Lanning and John E. Boal. That is the copy that was filed first.

503 Q. The only difference between the two was that the one that was filed last was verified by the president and secretary instead of being verified as the first one was?

A. Yes, sir.

Q. At the time this was left with you, Mr. Harbaugh, was it explained to you that it was impossible to get the verification of the president in time to file it immediately; that it had to go to Boston for that purpose?

A. I think they did; yes, sir. In fact, I am sure they spoke to me; called my attention to the fact that it was not verified by the president and secretary.

Mr. WORKS: That is all.

By Mr. GIBSON:

Q. You say, Mr. Harbaugh, that you are not sure who were present on behalf of the company during the discussion of Exhibit 2?

A. No, sir ; I am not positive.

Q. Was not Mr. Lanning, the secretary of the company, and Mr. Boal, the general manager, present ?

A. Well, Mr. Lanning was at a meeting there, but whether that is the one of February 20th or not I could not state positively. The water question was under discussion, however, at the time he was there.

Q. It was ?

A. Yes, sir.

Q. Well, was the question under discussion while Mr. Boal, the general manager, was there at any time ?

A. Yes, sir.

Q. About what time in the day was the ordinance passed, do you remember, in the morning or the evening ?

504 A. It was in the evening, I should say, as late as five o'clock.

Q. And what time was the statement, Complainant's Exhibit No. 2, handed in ?

A. Well, I do not recollect that.

Q. Was it while the board was in session ?

A. I could not state.

Q. I will ask you whether or not all the data purported to be set forth in Complainant's Exhibit No. 2 was in the control and possession of the company.

A. As I understand, you mean the knowledge contained in this statement was obtained from their books ?

Q. Yes.

A. Yes, sir.

Mr. GIBSON : That is all.

505 JOHN G. ROUTSON, being called as a witness for the defendants and being duly sworn by the special examiner to testify the truth, the whole truth, and nothing but the truth in this cause, now testifies as follows :

By Mr. GIBSON :

Q. State your name, age, residence, and occupation.

A. John G. Routson ; age, 51 ; residence, National City ; occupation, at present I am engaged in ranching.

Q. What was your occupation previously ?

A. Well, I have been in the real-estate business and insurance, more or less.

Q. Have you ever practiced civil engineering ?

A. Well, yes ; one branch of it, more particularly surveying, land surveying.

Q. Are you the John G. Routson named in the San Diego Land and Town Company's bill against the City of National City and its trustees ?

A. Yes ; I suppose so.

Q. Well, you know that you are, don't you ?

A. Yes; I am the party; at least, I was served with a notice to that effect.

Q. Who are your cotrustees?

It is admitted that the trustees are as named in the complainant's bill.

Q. Were you a member of the board of trustees in February last?

A. Yes, sir.

Q. Did you participate in the passage of ordinance No. 118?

A. Yes, sir.

506 Q. Passed on the 20th day of February, 1895?

A. Yes, sir. Those dates, though, I am not so positive of without referring to the actual records. No. 118 is the water ordinance, I suppose, and the date is the date of the meeting that it was passed.

Mr. GIBSON: Where there is any dispute about the date your attention will be called to it.

WITNESS: If that is the ordinance and that is the date, why yes.

Q. There is the ordinance. (Witness is shown ordinance book.)

A. Yes, sir.

Q. Can you state what took place with respect to the passage of that ordinance on February 20th, 1895, with reference to the consideration of any statement or purported statement that was delivered to the board of trustees by the San Diego Land and Town Company?

A. Well, it is pretty hard to recall every circumstance just exactly in the order in which it occurred. The board of trustees, if I remember correctly, were required to notify the land and town company or the company furnishing water —

Mr. WORKS: We object to his stating what the law is or attempting to. It is not responsive to the question, and we object to it as being immaterial, irrelevant, and incompetent.

Q. Now, Mr. Routson, just state what was done, no matter whether you were required to do it or not.

A. There was no statement furnished. If I understand the matter right, there was no statement furnished by the land and town company to the board of trustees that they could consider at all.

507 Q. I hand you this document, marked Complainant's Exhibit No. 2. See if that is the one that was before the board at any time on that day, no matter whether it is a legal statement or not; just state the fact.

A. Now, let us see. There was a statement brought in there the day that ordinance was passed. This probably is the statement.

Q. Well, what was done with reference to that; was it considered or not in connection with the ordinance?

A. Well, yes. Yes; it was considered, but there were other matters connected with that statement that I would like to explain prior to that. It has a bearing on that statement and a bearing on the ordinance.

Q. Well, go on and make your statement.

A. Just as I said before, this statement was furnished, if I remember right, on the day that the ordinance was passed, or the last day probably that it could be passed, to the committee who was appointed to draft this ordinance and report back to the board, and it had only a very short time to consider this statement, and in their consideration of the amounts to be fixed in the ordinance they were governed almost wholly by the old ordinance and the statement furnished the year prior. Now, that is my recollection. In connection with this statement the committee met in the marshal's office and adjourned, if I remember right, to the city attorney's office, Dr. Palmer's office, and there met in a private way, with the city attorney, the committee of three, and Mr. Boal and Mr. Lanning were requested to be present with that committee, and were present. I know there were some pretty hot words ensued in reference to this statement here, that it had not been handed in in time so that the board could consider it. I remember that it was necessary to pass that ordinance that day.

508 Q. Had the committee at any time previous to that day met or held any meetings at which any representative or representatives of the company were present, with reference to the preparation of ordinance No. 118?

A. I do not remember that there was any representative of the company present at any other time. I do not remember at any other meetings of the committee.

Q. Well, what else did the board of trustees do, either through its committee or the board acting as a whole, with respect to obtaining data from the San Diego Land and Town Company preparatory to the framing of ordinance No. 118?

A. I do not know, Judge, that they did anything, except serve this notice.

Q. Did the San Diego Land and Town Company propose anything? If so, state what it was.

A. Yes, sir; they proposed an ordinance. They presented an ordinance to the board or to the committee. My impression now is that the committee held a meeting in the land and town company's own office. That is sort of my impression, at which the ordinance proposed by the company was presented to the committee, either that or else the ordinance prepared by them was presented to the board in session and asked that that ordinance be passed, such as prepared by them. That might have been presented on the last day.

Q. Was that proposed ordinance considered by the board?

A. Yes, sir; it was. It was considered by this committee.

Q. In preparing ordinance No. 118 what did the board of trustees consider, in addition to the statement furnished by the company for the previous year and the ordinance of the previous year?

509 A. In making up the different rates?

Q. Yes, sir.

A. The committee took into consideration this thing in particular

that I remember of, that there was a statement from the company for the year before of the amount of dollars. The statement was with reference to their whole system. There was a statement as to the amount of money received from National City for all purposes under the ordinance as in force the year prior. There was also included in that statement the receipt of all moneys from all sources, everywhere—the whole system—all their expenditures for all sorts of items, maintenance, additions to the system, and so on. Those things were gone through, I think, quite thoroughly, and we came to the conclusion that the amount of money received from National City the year prior was very nearly, if not quite, one-half of the whole amount received from all other sources. That being so, we did not see how it was possible that we could be assessed any higher for water, and the rates were then fixed by the committee, and there were some changes made in rates from the prior year. The intention was really that the rates fixed would bring in more money than they had the year before. Just how much no man could say.

Q. State whether or not the condition and capacity of the company's plant, and also the needs of the inhabitants of the city of National City, for both irrigation and domestic uses, and the number of inhabitants and the area under irrigation, and also the area that could be irrigated from the company's system in National City, were considered by the board.

A. Yes, sir; those things were gone over, to a certain extent. It was well known at that time—

510 Mr. WORKS: We object to what was well known.

WITNESS: Then it was a fact. How will that do you?

Mr. WORKS: We object to that; it is not responsive to the question.

Q. Let the witness go on and make any explanation of his answer.

A. It is a fact, then, that the company could not or would not supply any further water this summer a year ago to any new takers.

Q. Well, had they refused to supply water in National City?

Mr. WORKS: Speak from your own knowledge, Mr. Routson, not from hearsay.

WITNESS: Well, from my own positive knowledge I do not know.

Q. Was there any information or statement made to the board of trustees by any of the inhabitants that the company had refused to furnish water?

A. Yes, sir.

Q. In National City?

A. Yes, sir.

Q. When?

A. The date I could not give exactly—

Q. And to what extent?

A. —but I recall some two or three instances where people spoke to me. I suppose individually. I do not know whether individually

or as a member of the board. It was outside the board meetings, at least—

Mr. WORKS: I object to it as mere hearsay if it was outside the board.

WITNESS: —that they had tried to get water and could not get any.

511 Q. Just confine yourself to what came to you in your official capacity as a trustee, Mr. Routson.

A. There were no complaints made in the open board of trustees that I recall now at all. As to this area of land under irrigation and area of land as well under the system subject to irrigation, I could not give you only a general idea on that. I had no positive knowledge.

Q. Well, all I asked you for is as to whether those matters were considered by the board preparatory to the passage of the ordinance No. 118.

A. Yes; we had before us at that time the number of acres under irrigation and the number of acres still in National City under the system—what was supposed to be under their highest elevations. We had it in figures at that time. I could not recall those figures now.

Q. You have stated that the land and town company expressed satisfaction with the previous ordinances. State which ordinances you referred to and what expressions were made in that regard.

A. I referred to the water ordinance subsequent to this one—the one passed the year before.

Q. Just wait a minute. You say subsequent to No. 118. That is the last one.

A. I mean the water ordinance of the prior year. There was the usual amount of wrangling over that ordinance also, but it was finally passed apparently perfectly agreeably to the land and town company and also the board of trustees.

Q. You mean prior instead of subsequent to ordinance No. 118?

(Counsel hands paper to witness.)

A. Prior; yes, sir. I used the wrong word.

512 Q. State whether any satisfaction was expressed with regard to ordinance No. 107.

A. No. 107 was passed three years ago?

Q. Yes, sir.

A. My recollection is that ordinance No. 107, when that was passed, was perfectly satisfactory to all parties. I do not remember of a word on either side. George J. Lockie was a member of the board then.

Q. Who was George J. Lockie?

A. George J. Lockie was the superintendent, I believe, of the National City and Otay Railway Company—general manager or something of that nature. He was also a member of the board of trustees at that time.

Q. Was Col. Dickinson a member of the board of city trustees while you were a member?

A. Yes, sir; I believe the first year that I was a member.

Q. Did you pass a water ordinance in that year?

A. Yes, sir.

Q. Can you state what ordinance it was?

A. I could not give the number.

Q. Can you by referring to the ordinance book before you?

A. These things bother me because they go away back. I have not attempted to refresh my memory or recollect anything. It bothers me to answer readily. (Refers to ordinance book.)

Q. I will ask you this: In what year did you become a member of the board of trustees?

A. Well, now, I have been a member of that board of trustees for six years next April—five years last April. It will be six years next April. Col. Dickinson was a member of the board at that time.

513 Q. Who was president of the board of trustees at that time?

You can refresh your memory by looking at the ordinance book.

A. Well, Col. Dickinson was president for a very short time after you became a member of it?

A. After I became a member, probably only one meeting—maybe two, if I remember correctly—the Col. resigned as chairman of the board, president of the board, and then Mr. Howard was appointed—O. E. M. Howard.

Q. What was Col. Dickinson's connection with the San Diego Land and Town Company at that time, if you know?

A. Well, the Colonel was known as the general manager here of their affairs.

Q. I will ask you to look at the record as to ordinance No. 88, establishing water rates in the city of National City, and state who the trustees were who participated in the passage of that ordinance and the date of its passage.

A. This is the 25th day of February, 1891. (Reads:) Passed, approved, adopted, and ordered published by the board of trustees of the city of National City, California, this 25th day of February, 1891. William G. Dickinson, John G. Routson, George W. De Ford, P. D. Vaughn. O. E. M. Howard absent—so the record states.

Q. Well, was that ordinance or not satisfactory to the company?

Mr. WORKS: To that we object as asking the witness for a conclusion.

Q. Well, was any dissatisfaction ever expressed by the company?

A. No, sir. My recollection is that the company proposed this ordinance themselves.

Q. Who did they propose it through?

514 A. My recollection is that the ordinance came to the board already made up, with rates fixed and established.

Q. Well, who—

A. I could not say as to who brought it before the board at this date.

Q. Did Col. Dickinson advocate its passage or not?

A. He voted for it. I could not tell just the order of its passage any more. I do not know who proposed the ordinance or who introduced it; I could not tell at this date. At that time the water business or water-rate business was very new to everybody in this country.

Q. Do you remember when the city of National City was organized as a city?

Q. Yes, sir; I remember the time. I was in the city at that time. I could not give you the exact date, though, from memory.

Q. Can you state from the records of the board when the first meeting was held—the first meeting of the city trustees?

A. Yes, sir. This is dated September 20th, 1887. It is my recollection that it was 1887, but I do not know the exact date.

Q. Refer to the minutes of the board and state when Col. Dickinson first became a member.

A. These minutes are dated April 10th, 1888, and it is certified that on that date W. G. Dickinson, S. S. Johnson, H. H. Bryant, O. E. M. Howard, and S. J. Baird were elected to the respective offices on that date as a board of trustees.

Q. Do you know how long Col. Dickinson remained a member of the board after you became a member?

A. I do not, but up to the date of his death.

Q. He did?

A. Yes, sir.

515 Q. Do you remember whether he remained a member of the board of trustees from his election to that office on April 10th, 1888?

A. Yes, sir; he was a member of the board continuously from his first selection until his death.

Mr. GIBSON: I suppose it will be admitted that he was also general manager of the complainant at National City during all that time?

Mr. WORKS: Yes.

Q. State, Mr. Routson, whether or not the city of National City passed ordinances regulating water rates from the beginning of the city.

Mr. WORKS: We object to that as being immaterial, irrelevant, and incompetent.

A. Yes, sir; that is my impression, that they passed a water ordinance each of the years since the city was incorporated, fixing rates; that is my recollection.

Q. And consumers paid, did they not, under the rates as so fixed?

A. Yes, sir.

Mr. WORKS: We make the same objection to that.

Mr. GIBSON: Let the same objection cover both.

Q. State, if you know, when the San Diego Land and Town Company first made objection to the rates fixed by the city of National City.

Mr. WORKS : We make the same objection.

A. Well, there has been more or less minor objections to the passage of all these water ordinances since I have been a member of the board, but those minor differences have always been adjusted, and ordinances then were passed that were perfectly satisfactory.

Of course, when this water-right business was sprung on the board down there, the board, as a board, I know, objected to water rights, although a year ago they did pass an ordinance including a price for a water right, but that was done wholly on the ground and with the understanding that the rates therein fixed were perfectly satisfactory to them and should always remain so. That was my understanding of the matter.

Q. Who prepared that ordinance?

A. That particular clause of the ordinance, I remember well, was introduced by Mr. George J. Lockie.

Q. Is that that ordinance number one hundred and—

A. Number 112.

Q. You say it was ordinance No. 112?

A. Yes; 112; this clause beginning here (showing) number 22, for the purpose of fixing rates for irrigating property, and so on. I might further say that the city attorney had a hand in preparing that particular clause, after a consultation with some of the members of the company, who were here from Boston at the time.

Q. State the number of the clause in ordinance No. 112 that you refer to.

A. It begins at section 22, "For the purpose of fixing water rates." Yes; that particular part of it was brought up and introduced—

Q. Did they make any objection to any other portion of the ordinance?

A. The company?

Q. Yes, sir.

A. No, sir; not that I remember of.

Mr. GIBSON : That is all.

517 Cross-examination by Mr. WORKS :

Q. I understand you to say, Mr. Routson, that the statement for the year, upon which ordinance No. 118 was adopted, was not filed until the day that the ordinance was actually adopted, and that it was too late for the board to consider it. Is that right?

A. My knowledge now is that the first I ever saw of that statement was before this committee in the city attorney's office—this committee of the board that was directed to prepare an ordinance—and my recollection is that this statement of the company's was presented at that meeting. That is my recollection, but it may have been filed prior to that; that I do not know.

Q. Do you mean, now, the meeting of the committee or the meeting of the board of trustees?

A. The meeting of the committee.

Q. How long did the committee meet before the meeting of the board of trustees at which the ordinance was adopted?

A. The board of trustees met immediately after the committee adjourned.

Q. All done in the same day?

A. All done in the same day—some time in the afternoon; I could not tell exactly now.

Q. Was that statement considered at all then—the one that was filed at that time?

A. The principal figures, if I remember, were gone over—that is, the principal figures—especially with reference to the income or the receipts.

Q. I understood you to say in your direct examination that you based your ordinance upon the statement of the year before?

A. So we did, principally.

518 Q. Why did you do that if you had the statement of this year before you and actually considered it?

A. The committee had had several meetings prior to this and had practically agreed upon an ordinance.

Q. The ordinance had actually been drawn and was prepared to submit at the time this statement was received, wasn't it?

A. Yes, sir; if it had not been for the presentation of this paper or the committee understanding that this report was ready to present to them the ordinance would have been passed without this special committee meeting. That is my recollection of it.

Q. And would have been just the same as it was?

A. Just precisely. There was no change made that I remember of at all. The committee had practically agreed upon the ordinance before this report was handed to them.

Q. Did you see the copy of that report that was filed, verified by Mr. Lanning and Mr. Boal, prior to the filing of this one verified by the president?

A. Well, now, I will have to go back again. As I said before, my impression is that this committee held a meeting in the office of the land and town company in which a statement was—not handed to that committee, but the statement was there on the table for the committee's observation, but it was understood to be not an official statement—that is, it was not handed to the committee by Mr. Boal.

Q. Then, as a matter of fact, your recollection is that this copy, if there was such a copy, was not used by the committee at all?

A. No; not exactly in those terms. My impression is that the total receipts and total expenditures from the system were gone over on that day by the committee in the office of the company,
519 and also considered, but my recollection is that, there being no official statement before the committee, they had no authority to act upon anything else but an official statement.

Q. As a matter of fact, your recollection is now that you did not

act upon any statement that was made for that year, Mr. Routson, upon the ground that it was not the official statement?

A. I can almost state positively that there was little attention to it, to this report.

Q. Was there any at all, according to your recollection?

A. Yes, sir; there was.

Q. Explain to what extent.

A. The total receipts were looked at and compared with the year before, and there was a certain amount received in National City, giving the names of all the users and all parties who paid money to the company. That was compared with the year before and it was found, if I remember right, from looking at the figures, not to vary but little from the year before.

Q. Why do you say it was necessary to pass the ordinance on the 20th day of February?

A. Well, I can only state from recollection and keep from quoting law. My recollection is that the time for the passage of that ordinance, according to our advice from our city attorney, had expired or was to expire that day. That is my recollection.

Q. Do you remember that you got that from an opinion from the city attorney?

A. Well, I could not say as to that.

Q. Or didn't you know, as a matter of fact, that you had all the month of February in which to prepare and pass this ordinance?

A. No; I do not remember that particularly. My impression now is that that was the very last day on which the ordinance could be considered and had to be passed on that day, is why it was done. There was no reason why it should have been passed that day or no reason why it should not have been delayed a week or month longer.

Q. That is your recollection now, that the board passed it that day because they believed they had to do it?

A. Yes; that is my recollection, that they believed they had to pass it that day in order to be legal.

Q. What figuring was done, if any, by your committee to arrive at the basis of fixing these rates; was there any at all?

A. About as I have stated. The amount of figuring that was done was simply with reference to receipts, basing our calculation on this year, so much as to—we knew very well we could not fix any rate that would give this company a reasonable per cent. on what they claimed their investment was. We could not fix any rate—

Q. Didn't you state at that time, Mr. Routson, when Mr. Savage and Mr. Boal presented a statement of their expenses and the amount they had invested and what would be necessary in order to make them a return—didn't you state at that time that the rates could not be fixed upon any such basis, for the people could not afford to pay it?

A. I expect I did; at least, I say so right now.

Q. That was the real theory upon which you acted, wasn't it?

A. No; not wholly. The theory was this: We had always been

paying about those rates. The rates in the present ordinance are a little different from what it has been in any prior ordinance.

Q. There is not a very material change, is there?

521 A. Our idea was it would raise a little more money.

Q. Did you figure about how much?

A. No; I do not know that we did. I do not know that we could get at the difference.

Q. Isn't it true that you have regarded all along, in your acts as a member of the board of trustees, that these rates that have been prevailing there are as high as the people could afford to pay?

A. Yes, sir.

Q. And have upon that theory refused to raise them?

A. Oh, no; not on that theory wholly.

Q. Well, upon that fact, or call it a theory?

A. Yes; I have an opinion right now and always have had that the rates as now fixed and the rates as prevailing, which are about the same, are all the people there can afford to pay.

Q. Now suppose, Mr. Routson, that you had taken this report made by the company and had taken all of its legitimate receipts, its operating expenses, and the expenses of maintaining and keeping the plant in repair, and the deterioration of the plant, if any, and had discovered that in order to pay the company a return upon its investment, considering all those things, that these rates would have had to be raised one-third or one-half—

A. Yes, sir; I do say so, or maybe two or three times.

Q. —would you, knowing that fact from those figures, have voted to raise the rates to those figures?

A. No, sir; I never would.

Q. You would not?

A. No, sir.

522 Q. Would you under that state of facts have voted to raise the rates in any material or considerable amount?

A. We did raise the rates with reference to acreage.

Q. How much an acre?

A. To four dollars from \$3.50.

Q. Fifty cents an acre?

A. Yes.

Q. Do you know how much land was being irrigated then within the city limits?

A. I cannot recall the acreage. We had it in figures at that time; had an estimate of our engineer of about as near as we could get at it.

Q. Do you remember, Mr. Routson, now about what you estimated that it would increase the revenues of the company?

A. No; I do not.

Q. Have you any general idea about it if you do not remember the exact amount?

A. Well, I do remember this: that we estimated—that we concluded that the rates as fixed and passed there provided that there was the same amount of consumers and a reasonable addition to the consumers at those rates. We were justified in expecting other

consumers to take water and pay also. We judged that the difference would bring probably about two thousand dollars more. That is as near as I can remember as to that exact point. If I remember rightly, their receipts were somewhere near \$12,000 in National City. I do not know the exact figures, and we thought that the rates as fixed would probably bring a couple thousand dollars more.

Q. Did you ascertain from that investigation, Mr. Routson, that in your judgment these rates would be sufficient to pay the
523 operating expenses and the expense of maintaining the plant and the interest that the company was compelled to pay on its bonds and return it any revenue?

A. Did I think it would?

Q. Yes.

A. I thought it would not, if their figures were correct.

Q. You were pretty sure it would not?

A. I was pretty sure it would not, even allowing that it would produce \$2,000 more than it did the year before, it would not produce anything to the company any more than—

Q. Well, did the committee take into consideration the fact that the company was and had been realizing money on sales of land in arriving at a just rate to be paid? Did you consider those things?

A. I do not know as I just understand your question.

Q. (Read by the reporter.)

A. Oh, no—that is, that the company were getting money from the sales of their own land?

Q. Yes. In other words, did you claim at that time that because the company was furnishing water to its own land and constructed this plant partly for the purpose of enhancing the value of its own lands that that should be taken into account?

A. No, sir; I do not think it was ever mentioned.

Q. You do not think that was ever considered at all?

A. No, sir; that by reason of the increase of value of their own land by putting water on to it that it added to their capital? No.

Q. You did not then consider that that was a proper matter to take into account in fixing the rates?

524 A. I do not think it was ever mentioned in that connection.

Q. There has been a contention on the part of the company ever since it established a water right that it should be allowed to charge that same water right inside of the limits of National City, hasn't there, Mr. Routson?

A. Yes; I believe so.

Q. That really has been the principal bone of contention between the company and the city with reference to these rates?

A. Yes; that has been the bone between the city and the board of trustees there. They have fought it out with individuals, I think, also. Yes, sir; that is where we split; right there—that is, this water right.

Q. The water right—I am speaking of the water right.

A. Yes; there never has been any difficulty at all until that came up.

Q. And when you passed your ordinance No. 107 the request was made at that time, was it not, by the company that you should grant them the right to charge this water right?

A. The demand was made at that time, and that same demand was pending during the whole life of that ordinance.

Q. And was not a suit brought by the company in the United States circuit court to set aside ordinance No. 107?

A. Yes, sir; that is the case, I suppose.

Q. And then subsequently you passed ordinance No. 112, in which you allowed the company to charge the water right, as you have before stated?

A. Yes, sir.

Q. And therefore the suit brought to set aside ordinance No. 107 was dismissed, was it not?

525 A. Yes, sir.

Mr. WORKS: That is all with this witness.

By Mr. GIBSON:

Q. Was not that suit dismissed in November?

A. I could not tell the date, Judge.

Mr. WORKS: We can get that date if you desire it.

Mr. GIBSON: I wish you would if you can get it.

WITNESS: I could not tell the date. I know we had notice from the land and town company. The hatchet had been buried.

Mr. WORKS: I want to ask you about another matter.

Mr. GIBSON: Then just withdraw my question and let the Judge go right on.

By Mr. WORKS:

Q. You have stated that it came to you either in the open board or outside that the company was refusing to furnish water to certain people in National City.

A. Yes; with a qualification—not at the present time, but during the last irrigation season or last summer—not this present season.

Q. Wasn't it claimed by the company at that time that with its then pipe line it was unable to furnish all the water that was demanded?

A. Yes; they claimed that they could not furnish any more water.

Q. Now, at the time this present ordinance was adopted the board knew that this new pipe line was in course of construction, didn't they?

A. Yes, sir.

Q. And it was understood that that pipe line when completed would remedy that trouble, wasn't it?

526 A. Yes, sir.

Q. That that would give them the necessary facilities to furnish the water?

A. Yes, sir; and it remedied it to a certain extent.

Q. And that was known to the committee when the ordinance was adopted?

A. Yes, sir; the president of the company stated, I think, in the presence of the board of trustees that if that *if that* ordinance was passed—No. 112—they would proceed to put in a new pipe line to the dam, especially to supply National City, the better to supply the higher points. There was a great deal of complaint up where I live, on the high ground. Sometimes no water could be had up there.

Q. That pipe line was a different one, a much less expensive one, than the one finally put in, wasn't it?

A. I do not know. It was understood by me, at least, that it was to be of sufficient capacity to supply National City wholly.

Q. You speak of the time ordinance No. 112 was adopted. At the time you passed No. 118 you knew the pipe line was actually under construction at that time?

A. It was under way at that time.

Q. And it was expected to be completed before this ordinance would go into effect?

A. Yes, sir; I think so. I think that is the case.

By Mr. GIBSON:

Q. Mr. Routson, was not February 20th the last regular meeting of the board of trustees for the month of February, 1895?

A. The board meets regularly on the first and third Wednesdays of each month, but we had been in the habit, where there
527 was any business of importance, of adjourning from time to time our regular meetings—adjourning from time to time. I cannot say now where we got this impression that that was the last day, but that sticks to me, that the ordinance had to be passed that day or not at all.

Q. The last regular meeting, then; you understood that it was the last regular meeting that you could hold during the month?

A. My recollection is that that was the last regular meeting; either the last regular meeting itself or an adjourned meeting, and that it was necessary to pass the ordinance that day. There was no other reason why it should not have been continued a week or a month, that I know of now.

Q. You stated, Mr. Routson, that no change was made in the ordinance after the Exhibit 2 was discussed by the committee. I will call your attention to meter rates. Were not meter rates raised from one and one-half cents per thousand gallons to two cents per thousand gallons?

A. Yes, sir. Now, then, I wish to correct my part of that statement.

Mr. WORKS: Was that after the statement was received?

WITNESS: Yes; that meter rate was changed, Judge, after it was agreed by this committee to adopt that ordinance. That is a fact—after that examination of this report. Now, that comes to me all right. That had escaped my mind entirely.

Q. How much of pipe line No. 2 was under construction or had been completed when ordinance No. 118 was passed?

A. Well, let's see. That ordinance was passed in February. The washout was when?—in January. The washout was in January, and there had been considerable work done on that pipe line prior to the big washout—the flood we had in Sweetwater valley last winter. I had not been over the line wholly, but I know there had been a great deal of work done on that line, and my impression is there was some pipe laid. How much I could not say, but there had been a great deal of excavation done for the pipe. What had been done in the vicinity of the dam I do not know, for I had not at that time been up that far.

Q. State whether or not any of the inhabitants of National City received their water supply from sources other than the San Diego Land and Town Company.

A. Well, quite a number of the people there have a private supply.

Q. From what source or sources?

A. From wells of their own, but not to the extent of irrigating a great deal with it; I do not know whether any. There may be some cases of irrigation from wells, but I do not recall any now, but for domestic use there are quite a number of people who have their own supply from their own wells and cisterns.

Q. What do you mean, irrigating acreage property or lots?

A. Acreage property is what I referred to.

Q. Are there not some there who derive their domestic supply and also that with which they irrigate lots from wells?

A. Well, there may be some little of that done.

Q. Do you know a man by the name of George Kimball residing there?

A. Yes, sir.

Q. How does he procure his water and what does he use it for?

A. I could not say positively. I do not know whether he gets water from the land and town company or not.

529 Q. Has he got a well and windmill?

A. He has got a well and windmill, I know, in operation there that supplies water, but to what extent I could not say.

Mr. GIBSON: That is all, Mr. Routson.

530 T. R. PALMER, being called as a witness for the defendants and being duly sworn by the special examiner to testify the truth, the whole truth, and nothing but the truth in this case, now testifies as follows:

By Mr. GIBSON:

Q. State your name, age, occupation, and residence, Mr. Palmer.

A. T. R. Palmer; age, 66; residence, National City; attorney.

Q. Now, what connection did you have with the city of National City in February last?

A. I was city attorney.

Q. How long had you been city attorney prior to that time?

A. I was appointed some time in December, previous.

Q. Have you been city attorney since?

A. I have.

Q. You are now acting in that capacity?

A. I am.

Q. Do you know Mr. Lanning?

A. I do.

Q. Mr. C. D. Lanning and Mr. John E. Boal?

A. I do.

Q. State what connection they had with the San Diego Land and Town Company in February of last year.

A. Mr. Boal was general manager. I do not remember Mr. Lanning's office, but he was visiting National City as a representative of the company—of the Boston portion of the company.

Q. He held himself out, did he, as a representative of the company?

Mr. WORKS: I wish you would not lead him, Judge;
531 being an attorney in the case, it is peculiarly objectionable.

Q. Were you present at any meeting of the board of city trustees of National City or any committee of the board in relation to the preparation or adoption, or both, of ordinance No. 118?

A. I was.

Q. State what occurred at any time or times when you were present at any such meeting, and also state who were present at such meetings.

Mr. WORKS: I wish you would separate the committee meetings and board meetings, Judge.

Q. Then I will ask you first with reference to the meetings of the committee of the board.

A. I was present with the committee of the board of trustees appointed to prepare a water ordinance when they visited the officers of the land and town company, I think about two weeks previous to the passage of the ordinance.

Q. State of whom that committee consisted.

A. It consisted of Mr. Routson, Mr. S. S. Johnson, and Mr. Samborn. There were present Mr. Boal and Mr. Lanning and some one else; I think Mr. Shattuck.

Q. Who was Mr. Shattuck?

A. I supposed he was one of the board of directors of the land and town company.

Q. Well, state what occurred on that occasion with reference to the ordinance or proposed ordinance.

A. Mr. Lanning stated at some length the wishes of the company in regard to the new ordinance, and presented a form of ordinance which they wished us to adopt, and gave his reasons for it at considerable length. At the same time Exhibit No. 2 was laid
532 upon the table, and I examined it briefly. That was all that I remember that occurred at that meeting.

Q. State what occurred at any other meeting of the committee when you were present. State them right in the order in which the committee meetings occurred at which you were present.

A. On February 20th, at a meeting of the board of trustees, this Exhibit No. 2 appeared upon the table of the board. The board immediately adjourned to enable the committee to examine it. The committee held a session in my office. Mr. Boal and Mr. Lanning were present, and the whole question of the cost of the plant and all the considerations that would enter into the formation of an ordinance were considered.

Mr. WORKS: We object to the conclusions. Just state what was said. Those are very broad conclusions.

Q. Well, just state what was said.

A. It was said that according to the testimony previously given of Mr. Savage before the board of trustees that the whole plant could be duplicated for \$600,000. Taking that as a basis, it was estimated about one-third of the number of acres were actually irrigated which could be irrigated under that system, and so, reckoning the cost of the dam and reservoir at \$250,000, one-half of that amount only was properly chargeable to the water system. It was estimated that the pipe system, which was supposed to have cost \$350,000, would cost, duplicated—had depreciated about fifty per cent., and therefore its present value would have been \$175,000. That, added to the one-half value of the dam and reservoir, was placed at \$300,000, the capital which was supposed to be chargeable to the consumers.

Mr. WORKS: That would make the total, you mean, \$300,000?

533 WITNESS: \$300,000.

Q. Was that National City's proportion of all?

A. It was then estimated that the proportion of National City would be one-fourth of this, or \$75,000, and it was stated that the proportional part of the cost of maintenance, leaving out the interest and one-half the attorneys' fees chargeable to National City, would be one-fourth, which, deducted from the amount actually paid during the past year by National City for water rent, would leave, on the basis of \$75,000 capital, ample payment for depreciation and some payment of interest. The discussion of these points, with Mr. Lanning principally, took place for upwards of an hour, after which the committee adjourned. The board of trustees met and the committee recommended the passage of the ordinance No. 118 as it was finally passed, as it is now, excepting the change which was afterwards made from one and one-half cents per thousand gallons for acre irrigation to two cents per thousand gallons, meter rates.

Q. During that discussion that you refer to and in making up the estimates that you have stated, was Exhibit Two before the committee and those who took part in the discussion?

A. It was and was referred to.

Q. State whether or not there appeared to be an effort on the part of the committee to arrive at a just and fair solution of the question before it.

Mr. WORKS: Objected to as being immaterial, irrelevant, and incompetent, and asking the witness for a conclusion.

A. It so seemed to me.

Q. State whether or not they used, as far as you were able and did observe them personally, every reasonable effort to obtain
534 information to enable them to act intelligently with regard to the proposed ordinance.

Mr. WORKS: Objected to on the same ground and on the additional ground that the question is grossly leading.

Mr. GIBSON: I will put it in this form:

Q. State what effort the committee made, as far as you know, to obtain information upon which to base the proposed ordinance, which was afterwards numbered 118.

A. They carefully examined the statement of the land and town company of the previous year, and, as I have already stated, the committee waited upon the land and town company to receive information. The water rates, as established at that time by San Diego, were before the committee, and, so far as I know, any other information that private individuals could obtain by inquiry as to the condition of matters through the city.

Q. Well, what do you refer to in "matters," the plant of the company and population, area to be irrigated, and so on?

A. The area to be irrigated and the necessity of the irrigators—consumers.

Q. These members of the committee were also members of the board of trustees, were they not?

A. They were.

Q. Where you say that the ordinance was passed as it is now, after the committee adjourned and the board of trustees took it up, and then the rates were changed from one and one-half to two cents for meter rates for irrigation, state how that occurred.

A. I wish to say that the ordinance, as recommended by the committee, contained one and one-half cents per thousand gallons, meter rates. This was afterwards changed by vote of the
535 board to two cents per thousand gallons, meter rates, for acre irrigation.

Cross-examination by Mr. WORKS:

Q. You have stated fully the basis upon which the rates were fixed in this ordinance No. 118. Did you, and, so far as you know, the members of the board of trustees, regard the rates fixed as reasonable, upon that basis?

A. We did.

Mr. WORKS: That is all.

Recess is here taken until half past one o'clock this afternoon.

536

Afternoon session.

W. C. KIMBALL recalled.

By Mr. GIBSON:

Q. How many were in the territory now known as National City at that time?

A. Well, of course, the population has been probably doubled, and more, too, since, you might say, during boom times. It remained about the same, I think you might say, until about the time the boom commenced, and then there was more building going on. I do not think there had been much change up to that time.

Q. What year was that in?

A. 1886 it commenced.

Q. What time did the company first begin to put water on the land?

A. They had their celebration in April, 1887—I think the 19th of April when they had their celebration there at National City.

Q. What year was that?

A. That was 1887, I think.

Q. After that did the population begin to increase rapidly?

A. Of course, you cannot say rapidly, but, of course, there was a good, fair increase after they began to get the water on the land; people begun to buy and improve.

Q. Did you have any connection with the land and town company in about 1880 and '81?

A. I did.

Q. And subsequently?

A. Yes, sir.

Q. What connection did you have with it?

A. I owned about one-thirtieth interest in it at that time.

Q. State whether or not the land and town company received the land comprising National City and Chula Vista as part of a donation.

Mr. WORKS: Objected to as immaterial, irrelevant, and incompetent.

A. Yes, sir.

Q. State of what that donation consisted and how it came to be made.

Mr. WORKS: The same objection. Will you let the objection stand to all this, Judge Gibson?

Mr. GIBSON: Yes, sir.

Q. Go right ahead and state what you know about it.

A. Well, the donation was given originally to bring the railroad on to the bay. That was what the donation was made for in the start—was the railroad—and, of course, after that the land and town company formed, and the railroad lands and what was given to those parties in Boston—five parties besides my brother and I—that was merged together and put into the land and town company,

aside from what the railroad took out on the water front there for their own special use.

Q. What water front do you allude to?

A. I allude to that lying near the railroad and south of the railroad, where their shops are now.

Q. At what place?

A. National City.

Q. How many acres were donated by yourself and brother?

A. About 16,000; somewhere in that vicinity.

Q. How much of that was in and about National City?

A. Well, of course, it took considerable of National City. We had sold some previously, but they took, of course—divided
538 up the other—took the left of what had not been sold and a few blocks that my brother and I had in our own possession—our own right—years before.

Q. Did it include any part of Chula Vista?

A. Oh, yes; all of it, clear to the line—that is, clear to our south line.

Q. What do you refer to as your south line?

A. I call the south line this line here (showing on the topographical map).

Q. Just designate it. What was the name of the tract?

A. Called the Rancho de la Nacion, containing 26,632 acres or in that vicinity.

Q. And of that yourself and brother donated about 17,000 acres?

A. Between sixteen and seventeen thousand.

Q. What was the land and town company's principal business, the sale and development of lands or not?

Mr. WORKS: We make the same objection that was made above.

A. It was for that purpose, for selling land.

Mr. WORKS: I want to add another objection, that the articles of incorporation are the best evidence of the purposes for which the corporation was organized, and on the further ground that the question calls for a conclusion of the witness.

Q. What led the company to construct the dam and put in the water plant, if you know?

Mr. WORKS: The same objections.

Q. For the development of their lands.

Q. What do you mean by development?

A. I mean to put the water on so it could be developed for agricultural and horticultural purposes.

539 Q. Did the company want to cultivate it or sell it, or both?

A. Sell it. They did not make any move on cultivating it themselves until a few years ago.

Q. Did they sell much of it by reason of the water plant?

A. Yes. Most of their sales were after the water was put in.

Q. What was the value of the land before the water was put on it, per acre?

Mr. WORKS: The same objection.

A. Well, I can tell you of instances where land was sold previous to that. In 1872—my brother and I owned it jointly at that time—we sold the west half of ten-acre-lot 11, in quarter section 152, for \$1,500. That was five acres. That was on the strength, of course, that we expected the Texas Pacific railroad at that time.

Q. Well, what was it worth for the purposes it could be devoted to in the state and condition in which it was then? Give us an idea about what it was worth per acre.

A. Well, it was worth, wherever you could get the water for irrigating—of course, we did not figure on a grain country. We do not figure on a grain country there, of course, as compared with other sections; we figure on fruit-growing. Where lands could be got with a fair depth of water we called the land worth—we sold it, at any rate, for \$100 or \$125 per acre.

Q. What was it worth without water?

A. I mean without water—when a man dug his own well.

Q. I mean where water was not to be had.

A. Just as it is in other places. A man can get one crop off from it in grain a year.

Q. Give us an estimate in dollars.

540 A. I should say \$50; perhaps more.

Q. Was it worth that for the production of crops without irrigation and for sheep-raising?

A. No; it would not be worth that for sheep-raising.

Q. Was it worth that for the production of grain where a man could only get one crop out of four?

A. I base it the same as we would in any other country under the same circumstances; not one crop in four, one crop a year. Of course, nature attached something to our land that it don't attach to everybody's land, on account of the location.

Mr. WORKS: Bay and climate?

WITNESS: Bay and climate; yes, sir.

Q. What I want to know is about what it was worth in its natural state without water to irrigate it.

A. Oh, well, if you could not obtain water from any source whatever there would be very little cultivation going on if you could not get it from some source.

Q. What would it average per acre, then, under such circumstances?

A. It would be pretty hard to say, excepting, as I say, the location.

Q. Then leaving out of consideration the location, as to what the land would produce, and supposing the dam were not built, the reservoir were not created, and there was no plant there to bring water?

Mr. WORKS: It is hardly proper to leave out the location if it affects the value of the land.

Q. I do not mean to leave out the location, to leave out the contemplation of the large water system.

541 A. I consider on the Chula Vista tract, before there was any water, aside from what we could get from a well, \$100 per acre. I mean good land, that is lying level.

Q. What did it average per acre?

A. We sold from forty to one hundred and twenty-five dollars before there was any water there.

Q. How much did you sell at that rate?

A. We sold Mr. Baird half a section.

Q. How much was that?

A. 320 acres. He paid, I think, \$35 and \$45 an acre. The front on National avenue was \$45 and the one right in the rear of it was \$35. I think those were the prices we got.

Q. What other tracts did you sell?

A. Well, before the water my brother sold some to Professor Henry on First avenue, I think, in National City, at \$100 an acre.

Q. How many acres?

A. Twenty.

Q. Were not those sales made in contemplation of a railroad?

A. Well, we had the railroad at that time—that is, the railroad was in here at that time.

Q. Now, before the railroad was put in there?

A. Well, this we sold Mr. Baird was before there was any railroad here, but some, of course, was sold since then.

Q. You refer to the California Southern railroad, do you not?

A. Yes, sir.

Q. What time did that reach National City?

A. They were building it in 1881; commenced in the fall of 1880, I think, or in the early part of the year.

Q. How long before the railroad reached there did you make the sale to Mr. Baird?

542 A. Oh, I should say four or five years, I should think; quite a long time ago.

Q. Four or five years before that?

A. I should say four or five years before the railroad.

Q. Was there much land in that locality sold at that price?

A. No; there was not much sold at any rate. We did not sell very much land. There were very few people here. At that time in this town there were not more than 1,400 people. There was not much here.

Q. How much did the facilities for obtaining water from the San Diego Land and Town Company increase the value of the land under its system?

Mr. WORKS: Objected to as immaterial, irrelevant, and incompetent.

Q. Of course, it attached quite a value to the land, having water, where you did not have to bother with a well and windmill.

Q. About how much did it increase it in value?

A. Well, taking it two ways on that; if you are going to take it today or years previous—

Q. No; take it there at the time when the land sold at the highest—any time between the time the water was put on and February last.

Mr. WORKS: Let this go in under our objection.

Mr. GIBSON: Certainly.

A. Well, there is one thing that was always attached to all the sales of land, barring the water; there was attached the locality—the location.

Q. We all admit, Mr. Kimball, that National City is one of the finest locations on earth.

543 A. I include it all. I am broader than that. I take the whole country.

Q. Well, we will say the whole of San Diego Bay region, then.

A. All the bay region; yes.

Q. Now go on and give us your idea on that subject.

A. Well, you can sell land, of course, today, if you can sell it at all. Of course, there is not much sale for land; you could hardly sell it today if it was not for the water, as I estimate those things. There are other places where water is developed, and they will go where water is developed already if they are going to buy.

Q. Then facilities for obtaining water on lands that may be cultivated by irrigation in that locality is one of the prime factors, is it, in establishing value?

A. Of course, I admit that. Yes; of course, it is. The water is the main thing in the country, on account of development. You have got to have water to make the thing a success. Of course, you can get along in a small way with a small amount of water.

Q. Did not the introduction of water there by the San Diego Land and Town Company largely increase the value of lands in that locality, and also add materially to the population?

Mr. WORKS: That is a fact that is alleged in both our pleadings and upon which there is no controversy.

WITNESS: Oh, yes; those are facts. There is no question about that.

Mr. WORKS: We will admit that, with a great deal of pleasure.

Q. You say you were familiar with the territory now covered by the reservoir?

544 A. Yes, sir.

Q. What was the character of land in that basin with regard to its use for agricultural purposes and grazing?

A. Well, some of the land that the reservoir covers is good land.

Q. About how much of it?

A. I could not say exactly. Then there is land that is rocky, and then there is land lying in the bed of the creek that would not be of much valuation excepting for water to lay on it.

Q. How many acres does the reservoir cover?

A. I think something over 700.

Q. How much of that is good land and how much poor land?

A. I should think likely there might be—I never took that thing into account. I have been over the lands a good many times. I should say there might be a third part of it that might be good land, as near as I could judge. I never thought the thing over to see, but I should judge a third part of it.

Q. How much was that worth per acre before the reservoir was constructed?

A. Well, the good land was worth as much as land anywhere lying in that location.

Q. How much was that?

A. I should suppose \$25 an acre.

Q. How much was the poor land worth?

A. There is some of it just holds the world together, you know. Of course, the real value to it would not be but trifling. I would not want to pay taxes on it.

Q. Would it be worth a dollar or five dollars or ten dollars an acre?

A. I suppose if you were going to buy of the Government
545 you would have to pay a dollar and a quarter.

Q. Is it worth any more than that?

A. No; there is land there that I would not give \$1.25 for, because it has no earthly use except for the use it is used for now.

Q. Were you a member of the company at the time the Neale land was acquired or sought to be acquired?

A. Yes; I was.

Q. State what that land cost the company.

A. I think they settled up the whole thing for \$80,000. I think they compromised for \$80,000. I think that is the way they compromised.

Q. What led to the payment of such a price?

A. Well, the court decided, I think, it was a hundred and twenty thousand dollars, if I recollect right, and you know they had to dig a tunnel through there and drain off the water, under Judge Field's decision—either pay the judgment or draw the water off—and they drew the water off, and then during that year some time they compromised the matter, I think, on an eighty-thousand-dollar basis.

Q. Was that land worth \$80,000?

A. Oh, Lord, no.

Q. How much was it worth?

A. Just as I said; part of it was worth \$25, and some worth \$1.25. I would not pay the taxes on part of it.

Q. You knew Col. Dickinson in his lifetime, did you?

A. I did, and I am happy to know I did know him, too.

Q. What connection did he have with the company?

A. He was general manager.

546 Q. Covering what period?

A. I think he came here in 1886, if I recollect right.

Q. Was he general manager of the company from that time up until his death?

A. He was, as far as I know.

Q. What year was that?

A. He died the 16th day of July three years ago, four years ago next July; three years last July since he died.

Q. That would be 1891?

A. It would be 1892.

Q. You were a member of the company, I believe, at the time the dam was constructed?

A. I was.

Q. And the plant put in?

A. Yes.

Q. State whether Col. Dickinson, as general manager, ever made any statements regarding the cost of that plant to you. If so, what were they?

Mr. WORKS: We object to the question as being immaterial, irrelevant, incompetent, and hearsay.

A. Well, I have heard him—of course, we used to take a great many excursions up there, and the Colonel would go up and I would go up two or three times a week, and there would be a good deal of inquiry about the dam. I have heard the Colonel make this remark, "It cost something over \$800,000."

Q. How much over?

A. Well, of course, I could not say how much over; something over \$800,000.

Q. In that he did not include pipe line No. 2, did he?

547 A. No; not this last pipe line; no.

Q. How long have you been engaged in irrigating land out there and for what purpose?

A. Well, I have been irrigating the twenty-acre tract that I am on. I commenced putting out some trees, I think, in 1874—a few trees, I think, in 1874—and, of course, irrigated in that way with a well, pumped it, dumped it into a cask and carried it around and dumped it around the trees in cups on the twenty acres. That was all the water I had until the water was introduced by the company.

Q. There is no other way of obtaining water for irrigation, is there, except from the San Diego Land and Town Company and wells?

A. No; that is all.

Q. Are you able to state the amount of land that one miner's inch of water will irrigate in the National ranch?

A. Well, I should say, take the land as it will run—of course, you want to take one thing into account which I have, of course, made a study of: the land, most of it, has a subsoil. You take two inches of rain, our natural rainfall, and you get on to our common soil and you get outside of the road and you want to get back into the road just as quick as you can. Take the average soil and you dig down to the subsoil, where it is a foot or fifteen inches, and you will find that there will be a little well down there. Of course, when you get to that subsoil it will seep very slowly. Of course, in

the Sweetwater you can run the land full and a great many locations. Take Riverside, take Pasadena. I would rather have one inch on a land with a subsoil than to have four inches or five inches up there.

548 Q. Now, taking all that you have stated into consideration, how many acres of land will one inch of water irrigate, say, where it is devoted to the growth of orchard trees?

A. I should say on the land there that it will go over ten acres. I know I do not use an inch on ten acres.

Q. How old are your trees?

A. I have trees sixteen and seventeen years old.

Q. What kind of trees?

A. Orange.

Q. How many trees have you got to the acre?

A. One hundred.

Q. What other variety of trees have you?

A. A general variety of trees for family use, but principally oranges and olives.

Q. Is your land similar to all the other land under irrigation?

A. All of the red soil; of course, in some places it runs a little deeper than others, but, of course, the red soil is similar, on the ranch.

Q. Will one inch irrigate ten acres throughout the irrigable portion?

A. I should say it would on the mesa lands. In the valleys it is a porous soil and it would take very much more water.

Q. How much of the soil is mesa land?

A. The heft of the land is mesa land.

Q. About how much is valley land, bottom land?

A. Do you mean what there is in the ranch or what is now being cultivated?

Q. What is being cultivated under this system.

A. Well, now, I could not tell the number of acres, of course.

Q. Well, give an idea of the proportion, is it one-half or one-quarter or one-eighth?

A. I should say not much more than one-quarter part of the valley; maybe a little more than that; not half, I should say, 549 anyway, under the system.

Q. How much more will it require in the valley for ten acres?

A. I should say it would require double or treble. It will go below where the roots ought to go. Of course, it will not take so much now, because we have got the valley filled up full, but ordinarily for ordinary valley soil it will take so much more water.

Q. How much will it take now?

A. I should think, the way they irrigate now—I should think a couple inches would be enough, because it is pretty near the surface.

Q. A couple of inches for ten acres?

A. I think it would. It would be for trees anyway, because the land where they have irrigated they have simply filled the land full.

In a good many places it stands in the Sweetwater now, it stands from the seepage.

Q. By Sweetwater you mean Sweetwater valley, do you?

A. Yes; speaking of where it stands, of course, it would be in the creek.

Q. What is the population of National City, or what was the population of National City in February last?

A. Well, there has not been much change, I do not think. There have been some people going away and some coming. Our school population is about the same. It stands more than it was last year.

Q. How much?

A. I should say about 1,300.

Q. How much was it in February last?

A. I do not think there has been much change; I should say about 1,300.

Q. How much outside of National City, including the Ex-
550 Mission tract, that is under the system on the north of National City, Chula Vista, Sweetwater, Sunnyside, and Otay—about how many more?

A. Well, I should say seven or eight hundred, I should think, taking all those places you have mentioned.

Q. Is that including the settlement of Otay?

A. Yes; taking that in, I should think it would be that; there is quite a little town there. Taking those other settlements, there are quite a number of families there. I could not say definitely, but that would be my judgment.

Q. Do you know, Mr. Kimball, whether the company since it began to demand water rights some time in 1892 has furnished water for irrigation to any land not previously under irrigation without the payment of the water right demanded?

A. No; not as far as my personal knowledge goes. Something has occurred, I have heard other people say, but as far as my personal knowledge is concerned, though, I do not.

It is stipulated that from the time the complainant commenced to furnish water to consumers up to and until the month of October, 1892, the company furnished water to consumers inside and outside of National City for annual rates and without charging for a water right, and that during said time the annual rate charged was \$3.50 per acre, except where water was furnished for nurseries, vegetable gardens, and the like, where a higher rate, namely, \$5 per acre, was charged; and in addition to the annual rate so charged the company charged the expense of putting in service-tap connections, ranging from \$7 to \$50 each.

It is further stipulated that since October, 1892, the company has at all times declined and refused to connect and has not, in fact,
551 connected any lands with its irrigating system except upon payment made to it of the rate of fifty or one hundred dollars per acre for a water right or an interest charge of seven per cent. on the charge of \$50 and six per cent. on the charge subsequently made of \$100 for water right. This last admission applies to acre property and not to town lots.

Cross-examination by Mr. WORKS:

Q. Mr. Kimball, you have mentioned the fact of the donation of these lands. That donation was not made to the San Diego Land and Town Company, was it?

A. Part of it—that is, there was not any such thing as the land and town company at that time.

Q. That is what I mean—it was not made directly to the land and town company?

A. No.

Q. It was not made in consideration or contemplation of the construction of this water system at all, was it?

A. Not at that time.

Q. It was made to the Santa Fe Railroad Company or persons representing it?

A. California Southern at that time.

Q. To the California Southern Railway Company or persons representing that company in consideration of the construction of that road, wasn't it?

A. Yes, sir.

Q. And had nothing whatever to do with the construction of this system?

A. No.

Q. And nothing whatever to do with the San Diego Land and Town Company?

552 A. At that time, in 1869, my brother and I formed a water company to build a dam some time up there in that locality, and we turned those things over to the company.

Q. But that was long afterwards, wasn't it?

A. No; at the same time; when we made division of the land we turned over everything at that time.

Q. Do you mean you made that to the railroad company or did you make it to the San Diego Land and Town Company after it became the owner of the property?

A. I will not say as to that. It might have been after that, but I know we turned over all the interest we had; we turned over to them.

Q. Had any great amount been expended on those water rights or the construction of any water system?

A. No.

Q. Had any been expended or was it simply the water rights?

A. Well, we formed a company and we kept up our meetings, but still we did not spend any money to amount to anything.

Q. When did Col. Dickinson make this statement as to the cost of the system?

A. It was after the dam was completed when they used to run those excursions most every day up there. Colonel would go up, and I used to go up frequently, and lots of them asked the expense of the plant.

Q. There has been considerable added to the distributing system since that time?

A. No; the first system was all in at that time.

Q. I know, but they have extended their mains considerably since then?

553 A. Oh, yes; of course, this last year.

Q. Before this last year they had extended some of their lateral lines, hadn't they?

A. Well, they had taken up some, too; yes, sir.

Q. Mr. Kimball, you have given the value of the land covered by the reservoir and the amount of money that was paid by the San Diego Land and Town Company in settling the condemnation suit. The question as to the value of that land was in question in that case, wasn't it? That is, a large part of it; that part of it that was condemned, and the company attempted to show, didn't it, that the land was worth a good deal less money than Mr. Neale asked for it?

A. Yes, sir; one man made a statement that it was worth \$800 an acre on the stand.

Q. And the jury in that case actually found that the land was worth \$120,000, and the judgment of the court was so rendered, wasn't it?

A. Well, I do not know what they call the land worth or anything about that. The land was worth the same as it was anywhere else under the same circumstances.

Q. You understand that the judgment of the court was that it was worth \$120,000.

A. I know.

Q. And the company simply paid the \$80,000 in compromise of the judgment that — been rendered against it, didn't they?

A. Yes; that is what I understand they paid.

Q. Now, the question arose in that case as to whether the lands were valuable from the mere fact that they constituted a reservoir site, independent of the ordinary value of lands for agricultural purposes?

554 A. Well, of course, the land and town company's money made it possible to build the dam. Without the dam the land was not worth a heap.

Q. It was only worth something because it was there where it could be used as a reservoir?

A. Yes, sir; but the money made it valuable for that purpose.

Q. Mr. Kimball, how do you know how much water you use on your land; how do you measure it?

A. I measure it in this way: I measure that so many inches of rain will fill the ground so full, from the annual rainfall.

Q. You take water from the land and town company's system, don't you?

A. Yes, sir.

Q. Is that measured to you at all?

A. No; so much an acre.

Q. You do not know anything about how much you use by actual measurement?

A. I know they allow me to use 350,000 gallons per year, and I

do not use half of it. That is what I pay for. I pay for my full portion, although I do not use half of it.

Q. How do you know you don't?

A. For the reason that the land will not take it.

Q. You do not judge of the amount of water you use from any measurement made, but simply because you believe the land will not hold that much water?

A. That is it exactly; of course, I do not measure it.

Q. Now, as a matter of fact, if your neighbors do use the full amount of 350,000 gallons and the land does hold it, you are mistaken, aren't you?

555 A. I do not think there is any land that they put on 350,000 gallons—that is, I mean the mesa land.

Q. Do you know, assuming that they do, your calculation would be all wrong if the land would hold that much water?

A. As a matter of fact, it gives you ten inches of solid water on the land. Now, we do not ordinarily commence to irrigate in a fair year up until June, anyway. I do not irrigate usually; my olive orchard at Chula Vista I only irrigate twice. I have not irrigated my olive orchard at home of the real value of one real good irrigation this year.

Q. You do not irrigate olives as much as some other fruits, do you?

A. Well, I have told the company, Judge, that I would prefer that they would put the meter on and pay for it by the gallon. I do not calculate to waste any water. I get along with a very small amount of water and good cultivation.

Mr. WORKS: That is all, Mr. Kimball.

By Mr. GIBSON:

Q. When the reservoir was constructed or created and pipe line No. 1 put in, was it not put in in anticipation of the sales of land by the company and for the future growth of population?

Mr. WORKS: Objected to as immaterial, irrelevant, and incompetent.

A. Yes, sir.

Q. To what extent?

A. I do not know, of course; I do not know as ever I heard any one say the exact extent.

Q. Well, you know, as a matter of fact, that there was but a small proportion of the land under cultivation and but few people there at that time.

556 A. Oh, if the land that the water system would cover was under proper cultivation and water used economically, I consider the National ranch would support a population of fifteen or twenty thousand people, the ranch alone, if it was under cultivation, without any trouble at all.

Q. Well, was not this system constructed for the purpose of selling off the lands of the company?

A. Oh, that is what it was, to make some money out of the investment, of course.

Mr. WORKS: It is understood that this is all objected to, of course?

Mr. GIBSON: Yes, sir.

Q. When the system was first put in use, about how much of it was used?

A. Oh, a small amount at that time.

Q. About how much—one-tenth or one-twentieth?

A. I should not say there was five hundred acres when they first put the system in.

Q. About how many people were supplied?

A. Oh, at that time I do not believe there was more than—there might have been when that system—when they introduced the water there, there might have been perhaps a thousand people in National City at that time. That was, of course, right on the top of the boom, as you might say; but the land, of course—at that time there was very little land, because they had very little water to do anything with until after the system was inaugurated.

By Mr. WORKS:

Q. Mr. Kimball, you said the water celebration, which, I suppose, was to celebrate the turning on of water in this system, was
557 in 1887. Wasn't it in 1888?

A. Well, I will not say.

Mr. GIBSON: It was, as a matter of fact.

Mr. WORKS: And Mr. Boal says it was.

WITNESS: I would not say. I guess it was. I think it was 1888 instead of 1887. I stand corrected.

Mr. WORKS: That is all, Mr. Kimball.

Mr. GIBSON: Will you admit that the company has at all times treated lands not sold by it and to which it furnished water, without being compensated by a water right, upon the same footing with reference to the furnishing of water as lands it sold itself with water?

Mr. WORKS: Yes.

Mr. GIBSON: Will you further admit that property has changed hands upon that basis? In other words, if A owned land and the company furnished water at the annual rate, without charging for a water right, and sold it to B, that the company would furnish B just the same?

Mr. WORKS: We admit that we furnished it to the persons who bought it from the original takers in the same way.

Mr. GIBSON: I suppose you will admit that ordinance No. [94] * 112 was passed as stated in the answer and was in effect up until the passage of ordinance No. 118?

Mr. WORKS: Subject to the objection that the matter asked to be

[* Figures enclosed in brackets erased in copy.]

admitted is immaterial, irrelevant, and incompetent, we admit the fact.

558 Mr. GIBSON: Will you also admit that ordinance No. 118 was introduced at the regular meeting of the board of trustees held on the 6th day of February, 1895, and that the question of its passage was laid over to the next regular meeting, held on the 20th day of February, 1895?

Mr. WORKS: Are you sure of your dates?

Mr. GIBSON: Yes; this is taken from the minutes.

Mr. WORKS: We will admit it.

JOHN E. BOAL recalled.

By Mr. GIBSON:

Q. Mr. Boal, how many water rights were sold in National City since you begun to demand \$100 for a water right? And state when the sales were made.

A. There have been none sold at \$100 in National City.

Q. You have already stated that there were two water rights sold at \$50 each?

A. Yes.

Q. State when such sales were made.

A. I cannot give the exact date of that.

Q. Give about the date.

A. It was early in 1893.

Q. In '93?

A. Yes; that is my recollection.

Q. Do you remember about the month?

A. No; it was about February, 1893.

559 H. N. SAVAGE recalled.

By Mr. GIBSON:

Q. How much was the capacity of the dam increased by the repairs of 1895, including the increase made by the parapet and the flash-boards?

A. Absolutely none.

Q. Well, how was that?

A. Because the company do not own the land that would be flowed if water was held to a greater height than the top of the dam as originally constructed. The increased parapet was constructed to protect the sides of the canyon at the ends of the dam, and not to increase the storage capacity of the dam.

Q. Well, the storage capacity may be increased if it acquires the land that would be flowed by using the flash-boards and parapet, might it not?

A. The storage capacity of the dam would be increased if the company purchased land and did increase it.

Q. Well, how much, then, would it be increased?

A. I have not had accurate measurements made to ascertain.

Q. Well, give us as nearly as you can.

A. I estimate in the vicinity of nine hundred million gallons.

Mr. GIBSON: That is all. The defendants now offer the comparisons made between ordinances 107, 112, and 118 in connection with the testimony of Mr. Alverson, and ask to have it marked as Special Examiner's Exhibit Defendant E.

Mr. WORKS: And the complainant consents that the same may be incorporated in the evidence merely for use by way of comparison.

560 By Mr. WORKS:

Q. Mr. Savage, Mr. Alverson in his testimony, if I understand him, claims that you have overstated the loss of water in the reservoir by evaporation because of the fact that you omitted to take into account the amount of water that flowed into and through and out of the dam during the time water was being used for irrigation. I wish you would state whether you did or did not take that fact into account in arriving at the number of inches and the percentage stated in your testimony.

A. I did take that quantity of water into account very carefully. Although it was impossible to measure it accurately, the probable use during the time the run-off of the water-shed was being impounded in the reservoir was taken into account, and not omitted, as Mr. Alverson assumed.

Q. Mr. Copeland stated in his testimony that water flowed to the bay in the Sweetwater river in the rain season of the years 1873-'4 and 1883-'4. Can you state what the amount of rainfall was that year—as to whether greater or less than the ordinary?

A. Mr. Copeland in his testimony stated that the river ran into the San Diego bay up to July or August, 1874. Statistics show that there have been excessive floods in the Sweetwater river in the years 1873-'4, 1883-'4, and 1894-'5. The rainfall for 1873-'4 rain season, as observed in San Diego, was 16.9 inches. Mr. Copeland also stated that the river ran into the San Diego bay about the same period during the dry season of 1884. The year 1883-'4 was the heaviest rain season by over fifty per cent. ever recorded by the Signal Service in San Diego.

Q. Have you kept any record of the flow of the Sweetwater river since the dam was constructed; and, if so, at what point?

561 A. I had a weir constructed across the Sweetwater river for the purpose of measuring the flow in 1891, to ascertain the quantity of water running in the river after the flood and the time the water would continue to flow into the reservoir. This weir was constructed across the river at a point about one mile above the upstream end of the reservoir, at a point in the canyon where the bed rock cropped out on both sides and the bottom, and at a point where all the water likely flowing in the river would be compelled by reason of this bed rock to come to the surface, so that it could be measured in the weir as constructed. The weir was constructed in the early spring and as soon as the flood flow of the river had reduced to reasonable quantity, and was continued until the water entirely stopped running, which occurred between the 15th and 26th of July, 1891. I frequently visited this weir and had one

of my assistants visit it every week and report weekly, with other observations, the exact quantity that was flowing. I also took great pains to collect all information of a reliable nature to be had regarding the usual time of the river starting to flow in the fall and the usual time of its stopping to flow in the spring and summer and midsummer, and have had frequent occasion to use these times and this information, and have frequently sent one of my assistants, the keeper at the dam, up to the river to observe the condition of the water and to record as nearly as possible the times when the river begun to flow in the fall and stop-flowing in the following spring or summer.

Q. I wish you would state now what the result of those observations has been as to the time when the water ceased to flow in the spring or summer and when the flow commenced again in the fall or winter of each year.

Mr. GIBSON: I understand the witness that he did not make these observations himself, but that they were made by an assistant.

WITNESS: They were made, a portion of them, by myself in my trips up and down the Sweetwater. The records mostly, with the exception of 1891, made by an assistant and reported at different times. He has been up, at my direction, frequently, and reported to me verbally what the condition was, in addition to my own observations.

Q. You need not state, then, what appears from your record. You may state from your recollection, as refreshed by those different investigations made by yourself, about what time the flow ceased in the spring of each year and commenced in the fall or winter.

A. The flow of the Sweetwater river, beginning with the year 1891, has usually ended about July and begun to flow again the last of December, with the exceptions of the dry seasons when the flow has ceased somewhat earlier. By this flow I mean an appreciable constant flow. There is flowing in rivers in the arid region an apparent flow at night, when there is no water on the surface in the afternoon, by reason of the evaporation, but in rivers of this kind, where the evaporation is able to stop the entire flow, the quantity is inconsiderable.

Q. With reference to the duty of the reservoir, Mr. Alverson has made his calculation as to the number of acres that can be served upon the basis of 350,000 gallons per acre. You may state whether or not the company has been furnishing and charging for use upon any land a greater quantity of water than 350,000.

A. Throughout my connection with this company it has been furnishing to certain lands a quantity of water estimated at 350,000 gallons per acre per annum for orchard purposes, and payment has been received on that basis, and it also has been furnishing an estimated quantity of 500,000 gallons per acre per annum to other lands for nursery, vegetable, and alfalfa growing. Its practice has always been, in orchards where nursery has been grown extensively, to ask and receive a rate based on a use of 500,000 gallons per acre per annum.

Q. Respecting what was said by Mr. Alverson with reference to furnishing water by rotation, is this system designed for furnishing water in that way?

A. The Sweetwater distribution system is not designed to furnish water in rotation, but was designed to furnish water under constant pressure. The design and plan of its pipe system, together with the size of the service connections, as requested by the consumers, is such as to prohibit the delivery of water wholly on the plan of rotation.

Q. You and other witnesses have given the capacity of the reservoir as though it is now and will always remain as it was when the dam was constructed. Is the capacity of the reservoir being diminished in any way by natural causes; and, if so, how?

A. The storage capacity of the Sweetwater reservoir is being annually diminished by reason of earth, sand, and so forth, brought down from above by the stream and precipitated in the reservoir. The exact amount I am unable to state from measurements, but that there is such an apparent decrease in storage capacity is very evident from observations, particularly at the upstream end of the reservoir this last season.

Q. Mr. Kimball and Mr. Copeland have testified with reference to water being found at times in the Sweetwater river below where the dam is situated. Is that true since the dam was constructed as well as before?

A. I have crossed the Sweetwater very frequently—sometimes several times a day—since January, 1891, and at certain places in the Sweetwater river have always noted the presence of water.

Q. How do you account for the presence of water at those points on the stream if the water ceases to flow above the reservoir?

A. There is a certain amount of water that is constantly passing where the dam is built by reason of minute seams at some distance back from the connection of the dam with the rock, and there are also evidences of what would seem to be springs in the river bottom, particularly at a point near Bonita, as frequently referred to by previous witnesses as the place where water is mostly seen, and another point near Bonnie Brae. I have never crossed the river at either of those points when there has not been some water. Fish have lived constantly and been in evidence at Bonnie Brae.

Q. You have furnished here statements of cost and expenses and estimates respecting the storage capacity of the reservoir, its duty, and various other matters. I will ask you to state when those statements were made and for what purpose.

A. The estimates given by me at this hearing throughout as to the yield of the Sweetwater water-shed and drainage basin, the storage capacity of the Sweetwater reservoir, and the probable duty of the Sweetwater distribution system were carefully compiled by me, mostly in the summer of 1884, as a basis on which to design additions to the distribution system and for the personal and private use of the officials of the San Diego Land and Town Co.

565 Q. Were those estimates and statements prepared for the purposes of this case or with any view of using them in litigation of this kind?

A. The statements just referred to were none of them prepared for this purpose, but were prepared for the use of the company only.

Q. Have those statements or estimates been changed or varied in any way for the purposes of this case?

A. They have not. Copies of the probable yield of the drainage basin and water-shed, as referred to here, were given by me to our officials in Boston last fall.

Mr. WORKS: That is all with the witness.

By Mr. GIBSON:

Q. Did you prepare any statements for the previous case involving ordinance No. 107?

A. I do not recall that I did.

Q. Did you not assist in gathering evidence and data preparatory to the trial of that case?

A. There was very little evidence or data of any kind compiled by me for that case.

Q. Still you compiled some, did you not?

A. I do not recall.

Q. Will you swear now positively that you did not?

A. I will not swear that I did not or that I did. I did not compile but very little.

Q. But if you compiled a little you compiled some.

A. I do not recall the evidence prepared by me for that case, and the evidence that I have referred to was not in existence at that time.

566 Q. No; but still some of the facts upon which you based your estimates were in existence at that time, were they not?

A. Very few of the controlling facts were in existence at that time.

Q. Do you mean to say that you have learned all the controlling facts or most of them since that time upon which you have based your statements in this case?

A. The low rainfall and low yield of the reservoir was developed first in 1893 and 1894. The duty of the distribution system was not determined until 1894.

Q. It had been in use, though, for some years previous?

A. It had been in use in a minor manner, but not to its full extent.

Q. What caused it to be put to its full extent in 1894? Had the demand for water increased?

A. The lower elevation of water and consequent less pressure from the water stored in the Sweetwater reservoir and with the constantly increasing demands for water from the system taken together.

Q. Had the demands increased to any appreciable extent, except for the company's lands, in 1894?

A. I do not recall the cause of this increase, whatever it was.

The particular developments were due, as before stated, to the less quantity of water stored in the reservoir and the consequent lowering of pressure.

Q. Yes; but was it not a fact that the company put a large area of land under cultivation in 1893 and '94 that had not previously been cultivated or irrigated?

A. The company has been planting a portion of its lands
567 every year for several years, and there was some land planted by the company in 1893.

Q. And was any new land put into cultivation by the company in 1894?

A. There was.

Q. How many acres in the aggregate did the company have under cultivation in 1894? I believe you stated that heretofore, but state it again, if you please. Either you or Mr. Boal stated it.

A. It must have been Mr. Boal.

Q. Wasn't it about a thousand acres?

A. No, sir; it was not any such quantity.

Q. About how much? I mean inside and outside of National City.

A. I would prefer not to state without examining the company's books and ascertaining the exact quantity. That increase was estimated to be about 400 acres.

Q. Then how many acres did the company have altogether under cultivation in 1894? I mean of lands that it still owned—of its own land.

A. Mr. Boal is the land man distinctly, and I prefer not to give statements that I cannot substantiate by him regarding that. (After an estimation :) I estimate about 900 acres.

Q. How many acres have been put in since then by the company?

A. I estimate about 400 acres.

Q. That would be about 1,300 altogether?

A. I estimate that the company have under cultivation for orchard purposes about 1,300 acres at the present time.

Q. Now, Mr. Savage, you have stated that water is furnished for nursery purposes and to vegetable gardens and charged for on the basis of 500,000 gallons to the acre?

568 A. Yes, sir.

Q. About how many acres, in the aggregate, were in use for nursery purposes and vegetable gardens in February, 1895?

A. As shown by my statements, referred to several times, compiled for my own use, approximately two hundred and seventy-five.

Q. How much of that area is owned by the company?

A. Very little.

Q. Well, about how many acres?

A. The company had at that time—

Q. I mean owned or leased, if it is leased out?

A. The company had at that time under cultivation, for nurseries, ten acres, five of which has since been taken out, and it has leased for vegetable purposes less than 25 acres.

Mr. GIBSON: We will withdraw the question, the first one at the top of the page, on page 367, requesting Mr. Alverson to prepare a statement of the proportionate cost of the pipe line chargeable to National City, as he is not able to prepare one within the time required.

Defendants rest.

Complainant rests.

569 I hereby certify that the evidence in this cause was all taken in shorthand by W. W. Whitson and myself, and that such portions of the foregoing transcript as are transcribed from my shorthand notes are correctly transcribed and contain a full, true, and correct statement of such portions of the testimony and the proceedings as are therein set forth.

San Diego, Cal., Oct. 30, 1895.

FREDERICK MEAKIN,
Shorthand Reporter.

I hereby certify that the evidence in this cause was all taken in shorthand by Frederick Meakin and myself, and that such portions of the foregoing transcript as are transcribed from my shorthand notes are correctly transcribed and contain a full, true, and correct statement of such portions of the testimony and the proceedings as are therein set forth.

San Diego, Cal., Oct. 28, 1895.

W. W. WHITSON,
Shorthand Reporter.

570 I hereby certify that the foregoing depositions were taken, pursuant to the agreement and consent of the solicitors for the respective parties, at the place stated in the caption to the depositions, in my presence and in the presence of the solicitors for the respective parties to the cause in said caption entitled, and under my direction; that previous to the giving of his testimony each witness was by me first duly cautioned and sworn to tell the truth, the whole truth, and nothing but the truth in said cause; that said depositions were taken down in shorthand by W. W. Whitson and Frederick Meakin, stenographers, approved by both parties and by me, and afterwards put into typewriting; that the signature of the witnesses to their respective depositions was, by stipulation of the solicitors for the respective parties hereto, waived, said stipulation hereinbefore duly appearing.

Accompanying said depositions are the several exhibits introduced by the respective parties referred to and specified herein as Complainant's Exhibits numbered from "1" to "5," both inclusive, and Defendants' Exhibits marked from "A" to "E," both inclusive.

All of which is respectfully submitted.

San Diego, Calif., Oct. 31st, 1895.

GEORGE J. LEOVY,
Special Examiner in Chancery.

(Endorsed :) In the circuit court of the United States, ninth circuit, southern dist. of California. San Diego Land & Town Co. vs. City of National City *et al.* Evidence. Works & Works, solicitors for complainant. Gibson & Titus, solicitors for defendants. Frederick Meakin and W. W. Whitson, reporters. Filed Apr. 4, 1896. Wm. M. Van Dyke, clerk.

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Ex. 1.

Statement—Cost of Water Rights, Dam, and Distributing System

Sweetwater dam	\$344,080.91
Land in lot "I," Jamacha, 313 A.	31,300.00
Land in $\frac{1}{4}$ section No. 3, 44 A.	4,400.00
Pipe-line right of way	
Proportion of reservoir	
Meter account.....	1,877.98
Tools	259.93
Live stock	400.00

*[382,318.82]

I. Cost of pipe line No. 1.....	\$544,154.72
Cost of pipe line No. 2 (contract).	65,000.00
Replacing 24" main, Chula Vista	15,000.00
Repairs on Sweetwater dam (flood).....	16,000.00

\$640,154.72

*[382,318.82]

*[1,022,473.54]

II. First bonds issued by company about \$500,000.00.

Probable amount chargeable to water system [to date]*.....	\$200,000.00
New bonds issued to pay for new work, about.....	100,000.00

*[300,000.00]

III. Amount of money realized from other resources and invested in water rights and improvements, including paid-up capital stock.

{ Sufficient to pay for construction and operation over amounts covered by bonds as shown above.

[* Words and figures enclosed in brackets in pencil in copy.]

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IV. Amount of interest to be paid annually, ac. indebtedness incurred account water department, 7 % on \$300,000.00...	\$21,000.00	
V. Extent and value of the distributing plant and improvements of water dep't within the limits of the city of National City..	161,666.40	
Estimated proportion of new line.....	22,087.50	
	<hr/>	\$183,753.90
VI. Operating expenses, as per statement to city, Dec. 31, 1894..	22,534.99	[Exclusive of int. charge as shown by statement, \$12,034.99.]*
Depreciation on pipe line, 6 % on \$640,154.72	38,408.26	
Depreciation on Sweetwater dam, 2 % on \$250,000.00 ...	5,000.00	*[\$65,942.25]
	<hr/>	†(\$68,588.31)
VII. Water rents realized from commencement of system to date:		
1888 \$3,991.31	} * [$\frac{2}{3}$]	
1889 11,054.86		
1890 12,679.05		
1891 17,451.73		
1892 18,907.10	} * [$\frac{1}{3}$]	
1893 22,255.86		
1894 24,565.67		
	<hr/>	\$110,904.58
VIII. Water rights in National City.	100.00	
Water rights outside National City.....	9,315.00	
(Total receipts)†	<hr/>	\$120,395.58
Water dep't service ac. credit.....		1,434.61
	<hr/>	
Total receipts		\$121,754.19

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IX. Amount realized for water rents in city of National City, as per statement to city	\$10,715.29	*['94.]
X. The per cent. of total net receipts as to the total investment.....	Deficit. ✓	

[* Words and figures enclosed in brackets in pencil in copy.]

[† Words and figures enclosed in parentheses erased in copy.]

- XI. Estimated amount that
will be realized annu-
ally from water rents
as fixed by present
ordinance. } About the same as received
in past year.
- XII. Estimated amounts that will be
realized annually from water
rents outside of National City. \$15,000.00
- XIII. Estimated value of entire water (about)
system at the present time.. \$1,100,000.00

(Endorsed :) U. S. circuit court, 9th circuit, southern district California. S. D. Land & Town Co. vs. Nat. City *et al.* 648. Special Examiner's Exhibit Complainant's No. 1. Geo. J. Leovy, special examiner. Filed Apr. 4, 1896. Wm. M. Van Dyke, clerk.

574 Detailed Statement of Water Rates Collected in City of National City for the Year Ending Dec. 31st, 1894.

Tap #.	Applicant.	Address.		
1	Mrs. W. G. Dickinson.	City	13.90	27.85
2	A. Chisholm.	"	15.45	10.50
3	S. D. Land & Town Co.	"	10.65	8.
4	F. A. Kimball.	"	8.50	
6	Thos. Hambrook.	"	1.50	2.50
7	Russ L'b'r & Mill Co.	"	14.75	14.90
8	M. J. Kingsbury & G. W. Varnum.	"	5.35	6.
9	G. W. Goodell.	"		8.65
12	F. A. Kimball.	"	15.95	
13	A. G. Adams.	"	15.65	15.80
14	Lynn Boyd.	"	10.90	15.25
	H. H. McMaster.	"		3.25
18	Joseph S. Sageset.	"	10.95	
19	F. A. Kimball.	"	18.75	
19a	W. C.	"	4.00	
20 F	"	"	9.05	3.
20 G	J. F. Morrill.	Chula V.	8.	8.70
	J. H. M'Neil.	"		5.15
21a	P. Zimmerman.	City	4.	
	J. H. M'Neil.	"		4.00
21c	W. C. Kimball.	"	1.75	3.10
21 G	"	"		1.75
22	Do.	"	29.75	40.50
23	W. J. Todd.	"	5.75	2.80
24	L. F. Jones.	"	14.50	14.50
26	T. E. Dow.	"	5.	5.00
29	Internat'l hotel	"	75.	62.50
30	T. F. Johnson	"	14.	14.
31	E. Steele.	"	15.80	10.45
34	H. S. Stafford.	"		1.00
36	J. F. Edwards	"	9.45	9.60
37	E. Thelm.	"	21.	18.05
38	J. C. Ball	"	8.75	6.25
39	Edw. Owens	"	15.	15.
40	H. T. Risdon	"		45.55
42	D. F. Hawkes	"	14.70	14.70

Detailed Statement of Water Rates Collected, etc.—Continued.

Tap #.	Applicant.	Address.		
43 ^a	J. A. Rice.....	City	10.33	10.35
43 ^b	Do.	"	2.50	5.
44	"	"	1.75	8.75
44 ¹	J. D. French.....	"	7.50	
46	David Webster.....	"		11.10
47	F. A. Kimball	"	1.25	
48	O. Kelchun & Deford.....	"	5.	4.45
49	Mrs. J. W. Withington.....	San Diego.....	13.20	6.60
50	G. C. Blanford.....	City	6.	4.
	For'd.....		445.33	448.55
575	For'd.....		445.33	448.55
52	F. A. Kimball	City .....	.61	
52	P. H. Noyes.....	"		3.35
52	Mrs. L. K. Smith.....	"	2.50	
53	J. M. Hallman.....	"	6.	5.
	Mary Bowen.....	"		3.
54 ^b	E. A. Long.....	"	4.95	
56	S. J. Baird.....	"	12.50	12.55
59	F. W. Copeland.....	"	13.50	11.45
60	Jos. Langley.....	"	7.75	12.03
	W. T. Chaffin.....	"		3.50
61 ¹	M. J. Kingsbury.....	"	4.50	7.85
29	S. D. L. & T. Co.....	"	10.	7.50
40 ²	F. S. Woodbury.....	"	5.90	9.60
38 ²	Mrs. Heffner.....	"	3.	3.
63	Ed. Quinlan, W. J. Todd.....	"	1.65	5.
64	Sam Kee.....	"	12.	12.
68 ^a	T. R. Palmer.....	"	9.05	7.80
69	Mrs. E. R. Trotter.....	"	8.15	7.40
70	H. G. Dow.....	"	1.35	13.30
71	J. O'Connell	"	12.50	8.30
74	Pioneer market.....	"	12.	10.71
81	Sarah Sniff.....	"	7.55	
82	Mrs. J. S. Gordon.....	"	16.50	16.50
83	John Costa.....	" .....	.75	
84	S. J. Whicker.....	"	4.	4.45
85	G. W. Deford.....	"	3.50	3.50
88	T. A. Ogden.....	"	12.	12.
89	T. J. Swayne.....	"	17.50	17.50
90	P. D. Vaughan.....	"	12.50	12.50
91	J. A. Frainer.....	"		24.40
92	P. D. Vaughan & W. B. Vaughan.....	"	6.	6.
93	Geo. W. Dickinson.....	"	28.35	12.60
95	S. Kidwell.....	"	8.	8.00
	L. M. Shaffer.....	"		5.25
96	F. Munroe.....	"	6.70	
98	J. A. Rice.....	"	14.	7.
92 ²	City of Nat'l City.....	"	6.	6.
78	Johnson & Perry.....	"	1.60	
72	Sam Lee.....	"	12.	12.
75	Su Ching.....	"	12.	12.
	For'd.....		742.19	750.79
576	For'd.....		742.19	750.79
100	Boo Sing Co.....	San Diego.....	49.50	49.50
105	J. J. Bicker.....	City	6.	
111	J. L. Mudgett.....	"	8.30	8.80

Detailed Statement of Water Rates Collected, etc.—Continued.

Tap #.	Applicant.	Address.		
112	P. T. Griffith.....	City	4.40	4.40
114	E. A. Hornbeck.....	"	5.25	10.50
115	M. Tonhoff.....	"	6.50	6.50
117b	W. C. Kimball	"	5.20	5.25
117	W. C. "	"	6.75	1.50
118	Sarah M. Kay	"	7.	7.
119	P. H. Evans	"	4.75	7.35
122	J. J. Bremen	"	1.20	3.
123	Parsons Shang	"	2.00	2.00
124	C. F. Blossom	"	7.	5.85
125	E. M. Patterson	"	4.	6.
129	A. P. Alexander	"	6.	6.
131	J. A. Mashmeyer	"		2.50
134	H. G. Dow	"	20.45	20.40
136	Herman Sholl	"	18.	17.50
137	J. A. Rice	"	11.25	10.30
138	"	"	8.75	8.75
139	Mrs. Brainard	"	8.85	14.30
141	S. A. Risdon	"	6.30	5.70
142	A. S. Dunrind	"	13.80	13.75
143	G. F. Hargis	"	6.00	
147	Mrs. O. E. M. Howard	"	3.50	3.50
149	F. B. Swayne	"	14.	14.
150	J. A. Fleming	"	28.20	28.25
153	Thos. Britton	"	17.75	17.65
158	A. Lestar	"	3.35	.50
159a	M. E. McLaughlin	"		3.05
160	T. J. Swayne	"	6.75	14.50
162	G. W. Deford	"	11.75	11.95
163a	J. McCartney	"	13.50	13.50
163a	H. Huntington	"	2.25	2.25
164	F. H. Samborn	"	6.00	6.
165	T. C. Kelley	"		15.25
166	Wm. Sattler	"	5.00	5.
167	Mrs. P. Thompson	Coronado	9.50	9.50
	For'd		1,080.99	1,112.54
577	For'd		1,080.99	1,112.54
167 ²	W. C. Kimball	City	1.75	1.75
147	J. A. Trainer	"	1.50	
147 ²	Chas. S. Reed	"		10.50
168	Bryd Bros.	"	3.50	4.46
174	Ah Jim	"	19.50	19.50
175	J. D. O'Connell	"	12.50	17.50
176	J. A. Rice <i>et al.</i>	"	5.05	3.80
177	W. H. Tuttle	"	10.25	8.80
178	Mrs. McFloyd	"	8.65	8.75
179	F. Maggai	"	5.	5.
180	J. H. Kincaid	"	9.	5.
182	Theron Parsma	"	13.50	13.50
183	Wm. Cox	"	8.	8.
184	T. E. Annis	"	13.20	13.20
185	E. M. Baker	"	10.	8.30
187	J. M. Todd	"	1.75	3.
188	G. W. Hale	"	9.00	6.35
190	R. G. Wallace	"	9.15	9.30
192	R. Granger	"	44.50	44.50
193	McC. Kimball	"	16.	
194	N. C. Matthewson	"	22.50	11.25

Detailed Statement of Water Rates Collected, etc.—Continued.

Tap #.	Applicant.	Address.		
198 ^a	H'y Symtson.....	City.....	8.15	4.70
200 ^c	M. C. Patterson.....	".....	2.	
200	A. J. McCourtney.....	".....	10.50	5.25
201	E. Aylmuth.....	".....	8.75	8.75
202	Mrs. Norris.....	".....	5.00	5.
192 ²	R. Granger.....	".....	6.	6.
203	L. E. Brown.....	".....	5.25	5.30
204	Dan'l Dodman.....	".....	5.	5.
207	W. C. Kimball.....	".....	9.50	9.50
208	J. C. Adair.....	".....		6.50
209	A. C. Wedekind.....	".....	20.70	11.65
216	So. Cal. R'y Co.....	".....	700.	600.
	J. L. Davis.....	".....		
224	Geo. J. Lockee.....	".....	7.70	4.55
227	M. Montgomery.....	".....	4.65	
227 ^e	W. F. Edwards.....	".....	1.40	12.
230	Burbeek & Copeland.....	".....	4.25	4.75
231	Mrs. McCullion.....	".....	4.25	1.60
	For'd.....		2,108.39	2,021.55
578	For'd.....		2,108.39	2,021.55
232	J. A. Rice.....	City.....	8.50	8.50
237	N. E. Dow.....	".....	7.70	7.75
209 ²	Geo. Wedekind.....	".....	3.80	1.45
233	Gus Monk.....	".....	8.50	8.50
240	W. S. Hill.....	".....	11.20	4.80
241	J. G. Rouston.....	".....	30.55	30.55
242	D. F. Garretson.....	".....	16.	16.
244	F. H. Samborn.....	".....		.90
247	S. J. Baird; 244 ^b , F. H. Samborn.....	".....	17.20	3.25
246	S. E. Goodell.....	".....		7.15
248	A. Clancy.....	".....	7.60	6.00
252	Eclipse Tree Wash Co.....	".....		.50
253	N. C. & O. R'y Co.....	".....	145.20	145.20
254	J. G. Rouston.....	".....	13.20	13.20
258	Jos. Workman.....	".....	5.65	3.35
259	F. H. Samborn.....	".....	6.05	8.35
260	M. H. Willis.....	".....	14.25	14.25
260 ^b	J. P. Tyam.....	".....	10.80	12.60
261	G. W. Ausley.....	".....	11.	11.
263	Geo. Hannock.....	".....	1.25	3.75
264	J. C. Crain.....	".....	7.50	7.50
267	<i>Et al.</i> , city of Nat'l City.....	".....	600.	600.
269	City schools.....	".....	24.	12.
271	Wm. Franks.....	".....	8.75	8.75
274	H'y Shawbut.....	".....	11.35	11.40
247	S. J. Baird.....	".....		17.30
273	H. J. Baldwin.....	".....		7.10
275	Jim Taylor.....	".....	13.50	8.50
296	I. N. Fima, Mrs. Wood.....	".....	1.35	7.60
278	J. W. Keene.....	".....	12.50	12.50
280	Chas. Kimball.....	".....	10.50	10.50
281	H. N. Savage.....	".....	19.80	12.85
211 ²	I. M. Howe.....	".....	4.00	9.80
284	F. H. Samborn.....	".....	6.60	2.35
283	F. Lobert.....	".....	4.50	
285	J. H. Foster.....	".....	12.25	4.20
	J. G. Rouston.....	".....	3.50	3.50
286 ²	Mrs. H. A. Lamb, J. O'Connell.....	".....	3.75	6.60

Detailed Statement of Water Rates Collected, etc.—Continued.

Tap #.	Applicant.	Address.		
287	H. H. Rice, A. W. Johnston.....	City	9.85	8.80
291	G. W. Hall.....	"	7.80	8.70
293	T. E. Annis.....	"	4.50	4.50
	For'd.		3,193.34	3,093.05
579	For'd.		3,193.34	3,093.05
293 ²	D. M. Hammack.....	San D.....	19.35	4.85
294	S. E. Harris.....	City	5.	5.00
297	C. H. Woostie.....	"	5.65	7.15
298	F. C. Risdon.....	"	19.	14.
302	J. M. Beck.....	"	8.30	
284 ²	G. W. De Tai.....	"	1.30	
286	Gus Moeck.....	"	5.	4.75
305	W. C. Kimball.....	" .....		.50
308	S. E. Goodell.....	"	7.35	3.60
309	A. J. Gould.....	"	6.80	20.25
310	J. D. French.....	"	9.20	6.
	Dan. Carey.....	"		
316	G. W. Jenks.....	"	5.	6.15
316	G. P. Banerline.....	"	3.75	3.30
318	Jno. McLoughlin.....	"	5.	5.00
321	Chas. H. Sweet.....	"	7.50	7.50
322	H. M. Stanton.....	"	11.90	10.20
	I. N. Ferris.....	"		5.35
325	Dan. Casey.....	"	7.95	
327	T. F. Johnston.....	"	1.75	1.75
328	S. S. Johnston.....	"	17.60	18.25
329	Mrs. J. H. Parsma.....	"	14.20	14.20
334	J. A. Jones.....	"	11.20	11.75
337	G. W. Nicholls.....	"	3.90	6.50
338	M. T. Gilmore, cash.....	S. D.....	3.50	3.50
338 ²	Geo. F. Otto.....	City	10.50	10.50
322 ²	M. L. Slocum.....	"	6.25	9.85
340	F. H. Samborn.....	"	6.75	11.
340	Chas. Blanford.....	"	10.45	6.75
343	Cong'l Church.....	"	3.50	3.50
44	Chas. L. Josselyn.....	"	9.30	5.70
45	Jno. Burns.....	"	8.50	8.50
46	Jno. A. Smith.....	"	18.	18.
48	S. S. Johnston.....	"	2.10	2.10
49	J. C. Adair.....	"	6.	1.00
12	E. J. Swayne.....	"	30.90	30.90
53	F. H. Samborn.....	"	9.60	9.55
4	A. A. Beardsley.....	"	24.75	24.80
6	G. E. Baxton.....	"	18.20	18.30
	For'd.		3,538.29	3,413.05
580	For'd.		3,538.29	3,413.05
357	J. H. Foster.....	City	5.30	5.30
359	Mrs. E. M. Gray.....	S. D.....	5.50	6.
360	J. B. McNeil.....	Los Angeles..	11.50	9.60
361	W. H. Ward.....	City	7.	2.35
362	H. A. Harbaugh.....	"	5.55	8.62
363	P. J. Layne.....	"	13.85	9.60
365	Pat. Greene.....	"	7.	7.05
366	Chas. Sweet.....	"	5.	4.10
367 ²	J. H. Kincaid.....	"	18.40	38.27

Detailed Statement of Water Rates Collected, etc.—Continued.

Tap #.	Applicant.	Address.		
368	C. S. Soper.....	City	9.55	
369	P. Green.....	"	9.50	9.25
370	Mrs. E. Tingley.....	"	8.55	7.10
373	F. A. Kimball.....	"	3.90	
374	Mrs. R. Brainerd.....	"	15.	15.
374	"	"	6.	6.
375	Geo. Frick & Deburgh.....	"	11.10	11.10
376	J. N. Simpton.....	"	8.	8.00
348 ²	A. Lester.....	"	4.20	4.20
342 ¹	Wm. Satler.....	"	1.75	1.75
379	E. Sheel.....	"	8.75	4.40
	M. Stewart.....	"		5.50
380	A. M. Hitchcock	"	2.90	
	W. H. Hilts	"		7.00
381	Emil Ratl.....	"	7.10	
382	F. Copeland.....	"	12.50	12.50
382 ^c	F. G. Blanchard.....	"	8.	8.10
382 ²	H. A. Burbeck.....	"	1.75	2.00
383	Mrs. W. G. Dickinson	"	5.90	11 75
385	Mrs. H. A. Lauch.....	"	8.10	8.
386	J. F. McCurdy.....	"	8.55	10.50
388	J. A. Brydy.....	"	1.75	1.70
390	L. N. Stevens.....	"	10.90	7.20
391	Ah Quinn.....	S. D.	43.50	43.50
440	Wm. Allinder.....	City	8.75	8.40
407	J. A. Rice.....	"	4.35	4.40
407	G. S. Burt.....	S. D.	4.40	4.40
407 ^c	Jno. Davidson.....	City	6.	3.
407 ^d	G. B. Smith.....	"	7.15	6.70
	For'd		3,845.29	3,715.39
581	For'd		3,845.29	3,715.39
426	F. A. Kimball.....	City	4.40	
429	Miss J. Sherman.....	"	4.25	4.25
433	W. W. Green.....	"	8.50	8.50
434	Mrs. Norris.....	"	1.75	1.75
436	Tom Yet.....	"	19.50	19.50
448	Cora Lamb.....	"	6.	6.00
450	J. G. Routson.....	"	2.55	2.55
452	James Mullen.....	"	9.30	9.25
457	N. T. Rowland, J. A. Mashinger	"	5.	2.50
460	Max Dallos	S. D.	4.80	4.40
461	J. F. Fohnie.....	"	19.	15.45
462	Record Cy	City	35.	30.
464	G. W. Grauch.....	"	6.75	6.75
465	Jno. Gray.....	"	10.	10.
466	L. A. Scott.....	"	5.	5.00
476	Mrs. Underhill.....	"	6.70	4.45
	Mrs. H. A. Lauch	"		9.50
477	A. W. Vaughan	"	9.50	
478	P. T. Griffith.....	"	24.	18.
479	Chas. Braidman	"	4.70	4.70
480	Mrs. C. Suberlich	"	8.75	8.75
481	E. Pattee.....	"	14.25	14.25
483	F. A. Kimball.....	"	3.90	
487	C. B. Roberts.....	"	11.25	6.25
481 ²	R. G. Wallace.....	"	5.70	
487	E. E. Walker.....	"	8.65	8.70
454 ³	R. E. Gatiss.....	"	19.90	19.90

Detailed Statement of Water Rates Collected, etc.—Continued.

Tap #.	Applicant.	Address.		
489	Tung Sing Cy.....	S. D.	52.25	62.70
493	W. C. Kimball.....	City	7.	7.
494	"	"	10.50	10.50
508	W. H. Ward	"	1.75	1.75
514	E. Lambrechts.....	"	5.	5.00
518	B'k N. City.....	"	14.90	14.85
520	C. H. Freeman	"	5.	5.
521	J. C. Hussey	"	10.	10.
518	S. J. Baird	"	4.40	
578 ⁴	G. W. Goodell	"	12.	5.25
	For'd		4,227.19	4,057.84
582	For'd		4,227.19	4,057.84
528	Mrs. Willingham	City	1.75	1.70
534	W. C. Kimball	"	7.	7.
	E. Diment	"		12.
543 ⁴	J. A. Rice	"	4.	
549	Doc Sing	"	32.	32.10
553	S. D. L. & T. Co.	"	33.25	33.25
554	G. R. Horton	"	7.70	7.75
556	Emma S. Lee	"	2.35	20.30
560	S. W. Smith	"	13.30	9.80
561	W. Eggleston	"	8.60	8.50
562	H. Porter	"	1.00	
562 ²	S. L. De Tan	"	9.35	3.80
570	R. G. Clark	S. D.	16.	16.
573	Cole & Gordon	"	5.	10.
583	S. D. L. & T. Co.	City	57.75	57.85
584	E. Thelm	"	7.50	3.45
589	J. W. Keene	"	3.75	3.75
590	D. K. Horton	"	7.	7.
593	R. Granger	"	54.75	54.70
584 ⁴	Burk Pickett	"	4.	
	E. Thelm	"		19.85
603	F. S. Woodbury	"	27.	
614	G. W. Ausley	"	3.70	3.80
616	P. D. & W. B. Vaughan	"	5.	5.
618	G. W. Burmater	"	14.	14.
629	Ah Quinn	S. D.	31.	31.
632	G. W. Goodell	"		1.65
636	G. A. Garrettson	"	15.	15.
648	E. Thelm	City	7.50	9.50
654	G. W. Deford	"	43.09	17.48
656	F. F. Dingman	"	8.40	11.70
656	H. M. Higgins	"	5.75	5.75
659	W. C. Harland	"	19.50	19.50
669	E. G. Hamilton	"	6.	2.65
674	M. E. Grigsby	"	6.80	6.75
679	J. B. Tomlin	"	16.70	19.45
648 ²	E. Thelm	"		5.50
682	W. C. Kimball	"	8.75	
682 ²	"	"	4.50	8.75
683	F. A.	"	11.70	
684	W. C. Kimball	"	17.50	8.75
	For'd		4,755.13	4,552.87

Detailed Statement of Water Rates Collected, etc.—Continued.

Tap #.	Applicant.	Address.		
	583 For'd		4,755.13	4,552.87
685	F. Fernberg	City	7.	5.35
686	L. D. Clark	"	3.75	3.75
	Varis Palmer	"		3.85
687	E. Knickerbocker	"	3.30	
688	Mrs. P. Brown	"	9.50	9.50
699	E. Thelm	"	7.50	3.75
715	W. B. Vaughan	"	9.50	9.50
683	Ah Sam	"	11.85	1.70
720	W. C. Harland	"	17.50	17.50
723	C. A. Severine	S. D.	16.50	16.50
729	Otto R. Frutag	City	9.50	9.60
733	H. G. Dow	"	4.35	4.35
735	F. P. Reed	"	2.20	2.20
736	A. Clancy	"	16.35	15.30
737	C. H. Swayne	"	8.75	8.75
742	J. S. Phillips	"	7.10	5.55
743	H. Ingraham	"	5.10	2.55
752	F. Simpton	"	5.	5.
723	J. C. Ball	"	6.10	1.50
762	Thos. Walker	"	12.50	12.50
764	City of Nt. City	"	6.	6.
768	P. T. Griffith	"	10.	10.
771	Geo. F. Otto	"	3.50	3.50
772	O. M. Barratt	"	20.	20.
775	F. A. Kimball	"	6.25	
782	G. P. Banuline	"	7.	7.
783	J. C. Ball	"	3.70	9.20
785	M. C. Kimball	"	12.	12.
792	Mrs. E. Woodard	"	5.	4.95
800	S. D. Parsons	"	23.80	23.90
801	H. T. Risdon	"		8.80
815	I. N. Morse	"	4.90	
826	W. C. Kimball	"	8.75	8.75
832	W. C. Waters	"	9.	9.
834	M. E. Grigsby	"	3.45	3.50
826 ²	S. J. Baird	"	2.95	
842	John J. Becker	"	8.90	7.25
845	E. D. Weage	"	5.80	5.
	584 For'd		5,059.48	4,830.42
	For'd		5,059.48	4,830.42
846	A. J. Arnold	City	9.	9.
848	Rob't B. Eystee	"	8.60	7.40
865	E. Joles	"	3.50	7.00
279	Coronado R'y Co.	Coronado		679.99
867	Mrs. Anna Adams	City	3.55	
867	F. H. Pike	"		6.55
868	L. A. Curtis	"	4.55	9.20
876	Don & Capron .....	" .....	.50	3.
869	Boo Sing Co.	"	27.55	27.60
874	S. J. Baird	"		9.60
877	N. P. Rowland	"		5.00
877	F. Lobul .....	" .....		.40
888	Marion Scaleony	"		3.40
			5,116.73	5,598.56

Total for year ending Dec. 31st, 1894, \$10,715.29.

National City, Cal'f. E. and O. E.

585

Construction Sw. Dam.

1886	7,692.41
1887	204,190.66
1888	37,556.44
1889	35.96
1890	
1891	93,102.84
1892	6.00
1893	1,496.60
1894	

344,080.91

Cost Pipe Line No. 1.

1887	419,255.04	
1888	103,768.08	
1889	3,122.31	
1890	14,603.16	
1891	1,161.81	
1892	Credit	241.88
1893	2,444.40	
1894	41.80	

	544,396.60	241.88
Less credit	241.88	
	544,154.72	

Cost Pipe Line No. 2.

1894	948.28
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Total cost pipe line	545,103.00
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586

Maintenance Sw. Dam and Pipe Line.

Year.	General expenses.	Legal expenses.	Office expenses.	Taxes.	Interest.	Total.
1888	1,895.24	1,000.00	1,500.00	3,441.67		7,836.91
1889	7,122.78	2,500.00	1,500.00	5,456.72	9,625.00	26,204.50
1890	6,300.53	2,500.00	1,500.00	4,303.19	10,500.00	25,103.72
1891	9,377.12	2,500.00	1,500.00	2,511.09	10,500.00	26,388.21
1892	8,052.78	2,500.00	1,500.00	2,250.98	10,500.00	24,803.76
1893	8,496.57	2,500.00	1,500.00	3,494.63	10,500.00	26,491.20
1894	5,224.83	2,500.00	1,500.00	2,810.16	10,500.00	22,534.99
	46,469.85	16,000.00	10,500.00	24,268.45	62,125.00	159,363.29

Water Department Expense, Including Salaries and Stationery.

1888	1,156.07
1889	1,762.67
1890	1,690.43
1891	3,393.02
1892	2,628.61
1893	2,913.91
1894	2,645.06
	16,189.77

587

*Receipts.**Water rents.*

1888	3,991.31	
1889	11,054.86	
1890	12,679.05	
1891	17,451.73	
1892	18,907.10	
1893	22,255.86	
1894	24,565.67	
		110,904.58

Water rights.

1893. National City	100.00	
" Outside	8,310.00	
1894. "	1,005.00	
		9,415.00
Total receipts		126,319.58

Expenses.

Cost Sw. dam.	344,480.91	
" pipe lines.	545,103.00	
Maint. pipe line & dam	159,363.29	
Water dep't expense.	16,189.77	
Total expenses		1,065,136.97
" receipts		120,319.58
Deficit		944,817.39

E. and O. E.

588 STATE OF CALIFORNIA, }
County of San Diego, } ss :

On this sixteenth day of February, A. D. eighteen hundred and ninety-five, before me, Frederick J. Brooks, a notary public in and for said county, residing therein, duly commissioned and sworn, personally appeared John E. Boal and Charles D. Lanning, personally known to me and known to me to be respectively the general manager and assistant secretary of the San Diego Land & Town Company, and made oath that the foregoing figures and statements are true to the best of their knowledge and belief.

In witness whereof I have hereunto set my hand and affixed my official seal, at my office, in the county of San Diego, State of California, the day and year in this certificate first above written.

[SEAL.]

FREDERICK J. BROOKS,
Notary Public in and for the County of
San Diego, State of California.

(Endorsed:) Copy. San Diego Land & Town Co. Water dep't. Statement, 1894. Filed Feb. 20, '95. H. C. Harbaugh, city clerk. U. S. cir. court, southern dist. California. S. D. L. & T. Co. vs. Nat. City. 649. Special Examiner's Exhibit "Complainant No. 2." Geo. J. Leovy, special examiner. Filed Apr. 4, 1896. Wm. M. Van Dyke, clerk.

589 The San Diego Land & Town Company hereby establishes the following rates and classification to govern the supply of water by this company and payment therefor, the same to take effect July 1st, 1895:

First. Dwellings, tenement-houses, flats, and other apartments, the same being occupied by not more than four persons, one dollar (\$1.00) per month, and for each additional person fifteen cents (\$.15) per month.

Second. Hotels and lodging-houses, in addition to family rates, fifteen cents (\$.15) per month per bed.

Boarding-houses, in addition to family rates, fifteen cents (\$.15) per month for each person.

Restaurants and coffee-houses, one dollar and fifty cents (\$1.50) to three dollars and fifty cents (\$3.50) per month.

Saloons and bars, two dollars (\$2.00) per month.

Third. Stores, one dollar (\$1.00) to one dollar and fifty cents (\$1.50) per month.

Offices, fifty cents (\$.50) to one dollar (\$1.00) per month.

Warehouses, one dollar (\$1.00) to two dollars and fifty cents (\$2.50) per month.

Dental-rooms, fifty cents (\$.50) to two dollars (\$2.00) per month.

Bakeries, one dollar and seventy-five cents (\$1.75) per month for each twenty-five barrels of flour.

Wagon and blacksmith shops, one dollar (\$1.00) per month for first forge; fifty cents (\$.50) per month for each additional.

590 Drug stores, one dollar (\$1.00) to two dollars and fifty cents (\$2.50) per month.

Barber shops, seventy-five cents (\$.75) per month for first chair; forty-five cents (\$.45) per month for each additional chair.

Fourth. Bath-tubs, private, thirty-five cents (\$.35) per month.

Bath-tubs in hotels, public houses, boarding-houses, and barber shops, etc., one dollar and fifty cents (\$1.50) per month.

Water-closets, private, fifty cents (\$.50) per month.

Water-closets, public, two dollars (\$2.00) per month.

Water-closets in hotels and public buildings, one dollar (\$1.00) per month.

Urinals, private, twenty cents (\$.20) per month.

Urinals, public, fifty cents (\$.50) per month.

Public water troughs, one dollar and fifty cents (\$1.50) per month.

Fifth. Horses and cows, for each of first two, thirty-five cents (\$.35) per month.

For third, twenty-five cents (\$.25) per month.

For each additional, two dollars (\$2.00) per annum.

For slacking lime, for each barrel, twenty cents (\$.20).

For slacking cement, for each barrel, ten cents (\$.10).

For wetting brick, for each thousand, fifteen cents (\$.15).

Sixth. The following rates are established as the charge for water measured by meters for all uses other than the irrigation of
591 acre property:

1 to 5,000 gal. per month.....	\$.40 p. 1,000
5,000 to 15,000 " " .....	.30 "
15,000 to 100,000 " " .....	.20 "
100,000 to 500,000 " " .....	.10 "
All over 500,000 " " .....	.05 "

Seventh. When water is furnished to hotels, steam-engines, gas machines or works, wash-houses (Chinese or otherwise), street and sidewalk sprinkling, washing stores and shop fronts, and for irrigating where satisfactory rates cannot be agreed upon, meter rates shall govern.

Eighth. For water used for purposes other than those above specified, this company will charge reasonable rates, as nearly as possible in conformity to rates fixed above for similar purposes.

Ninth. On lot and block property the rates for water used for cultivating gardens, lawns, and grounds shall be three dollars and fifty cents (\$3.50) per annum for the first lot and a like amount for each additional lot owned or cultivated by the same consumer, unless such additional lot or lots are used for orchard purposes and growing small fruits and vegetables, in which case the rate shall be one dollar and fifty cents (\$1.50) per annum for each additional lot after the first two lots up to a total of five lots, and one dollar and forty cents (\$1.40) for each of the sixth to the twentieth lots, inclusive.

Provided, however, that where a right to the easement and flow of water for purposes of irrigation has heretofore been acquired from this company on any acre property which is classified by the provisions of the rules and regulations of the company as lot and block property, the annual rates for water used on said property shall be reduced by six per centum of the value of said right, computed according to the subdivision of lot and block property and the value of such right as recited in said rules and regulations.

Tenth. For the purpose of fixing rates for irrigating acre property the lands of that character are classified as follows:

All lands to which the easement and flow of water for irrigation has been or shall be annexed by the consent or voluntary act of this company shall constitute the first class.

All lands to which the easement and flow of water for irrigation purposes has not been or shall not be annexed by the consent or voluntary act of this company shall constitute the second class.

For irrigating acre property of the first class the rate is hereby fixed at seven dollars (\$7.00) per acre per annum and for a less time than one year such rate as may be agreed upon between this company and the consumer.

For irrigating acre property of the second class the rate is hereby fixed at seven dollars (\$7.00) per acre per annum and for a less time than one year such rate as may be agreed upon between this company and the consumer. In addition to said annual rate for water used upon lands of said second class there shall be paid upon the

lands of said class an annual charge equal to six (6) per centum of the value of the right to said easement and flow of water for irrigation; which said value is to be taken as one hundred dollars (\$100.00) per acre.

The domestic rates on acre property shall be in addition to the charge for water for irrigation.

Meters for the determination of the amount of water used for which the rates are prescribed by this clause may be demanded by the consumer and will be applied by this company, in accordance with the provisions of the said rules and regulations.

The furnishing of water and the collection of rates therefor under the foregoing schedule will be subject to the said rules and regulations of this company.

SAN DIEGO LAND & TOWN COMPANY,
By ———, *General Manager.*

(Endorsed:) U. S. circ. court, southern dist. California. S. D. L. & T. Co. vs. National City. 648. Special Examiner's Exhibit "Complainant No. 3." Geo. J. Leovy, special examiner. Filed Apr. 4, 1896. Wm. M. Van Dyke, clerk.

594

Ex. No. 4.

Statement of Lands Irrigated or Capable of Irrigation from the Sweetwater System.

National City.

Lands owned by company in 1887	685 acres.
Lands owned " others in "	1,857 "

Total area below 140-ft. contour and exclusive of marsh land..	2,542 A.
--	----------

Lots owned by company in 1887	2,849
" " " others " "	3,842

Total No. of town lots, exclusive of marsh	6,691
--	-------

Under Irrigation.

Lands sold by company	50 acres.
Cultivated by company	53 "
Leased lands of company	25 "

Total	128 acres.
Owned by others, W. R., by use.....	607
Owned by others, W. R., " pur.	12

Total	619 "
-------------	-------

Total acres irrigated, National City.....	747 A.
---	--------

Lots sold by company since 1887 & irg	178
Lots owned by others " "	507

Total lots irrigated	
----------------------------	--

FOLDOUT(S) IS/ARE TOO LARGE TO BE FILMED

Summary.

Total acres owned by Co.	685	
Acres irrigated	128	
Bal. not irrigated		557 A.
Total acres owned by others	1,837 A.	
Acres irrigated	689	
Balance not irrigated		1,238 "
Balance not irrigated, total		1,795 A.
Total lots owned by Co.	2,849	
Lots irrigated	178	
Bal. not irrigated		2,671
Lots owned by others	3,842	
Lots irrigated	507	
Balance not irrigated		3,335
Total balance not irrigated		6,006

595

Sheet No. 2.

Outside National City.

Lands owned by company in 1887	4,514 A.	
Lands owned by others	2,467	
Total area below 140-ft. contour, ex. of marsh lands		6,981 A.
Lands W. R., under Ex-Mission cont.	396 A.	
" " special cont. J. M. Sharp	15 A.	
" " " " H. G. Root	19 A.	
		430 A.
Total		7,411 A.

Under Irrigation.

Sold by Co.	714 A.	
Cultivated by Co.	803	
		1,517 A.
Owned by others, W. R. acquired by use	970 A.	
" " W. R. by purchase	187 A.	
" " W. R. Ex-Mission cont.	396 A.	
" " W. R., Kimball, ex	44 A.	
" " W. R. special cont	34 A.	
		1,631 A.
		3,148 A.

Summary.

Total area owned by Co.	4,514 A.	
Acres irrigated	1,517 A.	
		2,998 A.
Total area owned by others	2,897 A.	
Acres irrigated	1,631 A.	
		1,266 A.
Total area not irrigated		4,264 A.

(Endorsed:) U. S. circ. court, southern dist. of California. S. D. L. & T. Co. vs. National City. 648. Special Examiner's Exhibit "Complainant No. 4." Geo. J. Leovy, special examiner. Filed Apr. 4, 1896. Wm. M. Van Dyke, clerk.

(Here follows diagram marked p. 595½.)

596 John E. Boal, gen'l manager, National City, Cal.
San Diego Land & Town Company.

* Insert A.

40,000 acres of choice fruit
and farm lands.

Irrigated land in 5, 10, and
20 acre tracts.

5,000 acres, in tracts of 5
acres each, at "Chula
Vista," near San Diego
and National City.

(Cut of Sweetwater dam.)
Sweetwater dam, built by
the San Diego Land &
Town Company.

900 acres of lemon and
orange groves from one
to three years old.

Boston, Mass., San Diego,
Cal., National City, Cal.

* Nonp. italic, flush.

SAN DIEGO, CALIF.,
† [NATIONAL CITY], CAL., Nov. 23rd, 1893.

To the board of trustees of National City, California:

The San Diego Land & Town Co., desiring to adjust all differences with the city and people of National City and of extending and reinforcing its pipe system within said city as fast as it can reasonably be done, suggests to the board of trustees of said city, and through it to the people of said city, as a basis for such adjustment and enlargement of water supply, that the right of said company to freely contract for the sale of water rights for lands not now under irrigation at the price of \$50 per acre, as fixed by the company, shall be recognized and declared.

Respectfully,

DWIGHT BRAMAN, *President.*

(Endorsed:) U. S. circuit court, southern dist. California. S. D. L. & T. Co. vs. Nat. City. 648. Special Examiner's Exhibit "Defendant A." Geo. J. Leovy, special examiner. Filed Nov. 23, 1893.
— — —, city clerk.

597 Filed Apr. 4, 1896.

WM. M. VAN DYKE, *Clerk.*

598

Ordinance No. 107.

An ordinance establishing water rates in the city of National City, Cal.

The board of trustees of the city of National City do ordain as follows:

SECTION 1. That the rates or compensation to be collected by any person, company or corporation for the use of water supplied to the city of National City, or to the inhabitants thereof, or to any corporation, company, or person doing business, or using water therein, are hereby fixed for the year beginning July 1st, 1893, as herein-after provided, and that no person, company, or corporation, shall charge, collect or receive water rates, in said city otherwise than as so established, to wit:

[* In pencil in copy.]

[† Words enclosed in brackets erased in copy.]

First. For water furnished to residences occupied by one family only, 1 to 4 rooms, \$10.00 per annum.

Residences occupied by one family only, 5 to 6 rooms, \$12.00 per annum.

Residences occupied by one family only, 7 to 8 rooms, \$14.00 per annum.

Residences occupied by one family only, 9 to 10 rooms, \$16.00 per annum.

Residences occupied by one family only, 11 to 12 rooms, \$18.00 per annum.

Residences occupied by one family only, 13 to 14 rooms, \$20.00 per annum.

Residences occupied by one family only, with more rooms, in the same ratio.

599 Second. Stores, offices, saloons and warehouses, from \$6.00 to \$25.00 per annum.

Third. To dental rooms, from \$6.00 to \$12.00 per annum.

Fourth. To bakeries according to monthly use of flour, for each 25 barrels, \$20.00 per annum.

Fifth. To wagon and blacksmith shops, \$12.00 for the first forge, and \$6.00 for each additional forge per annum.

Sixth. To livery stables, including carriage-washing, for each horse, \$6.00 per annum.

Seventh. To persons slacking lime, 20 cents for each barrel; and cement, 10 cents for each barrel; to wetting brick, 15 cents per thousand.

Eighth. To persons keeping horse and carriage \$6.00 per annum.

Ninth. To barber shops, for single chair, \$9.00 per annum. For each additional chair, \$5.00 per annum.

Tenth. To public watering troughs on sidewalks, \$12 00 per annum.

Eleventh. To water-closets, private, \$6.00 per annum, and for each urinal \$2.00 per annum.

Twelfth. Water-closets in public buildings, \$24.00 per annum. Lodging-houses, boarding-houses, and hotels, \$12.00 per annum; for each urinal, \$6.00 per annum.

Thirteenth. To bath-tubs, private, in one family, \$4.00 per annum.

Fourteenth. To bath-tubs, public, in barber shops and boarding-houses, \$18.00 per annum.

Fifteenth. To horse or cow, \$4.00 per annum.

Sixteenth. To coffee-houses and restaurants, from \$18.00 to \$36.00 per annum.

600 Seventeenth. Meter rates.—First. For quantities up to ten thousand gallons in any one month, at the rate of 55 cents for each 1,000 gallons.

Second. For the quantity so used in any one month exceeding 10,000 gallons and up to 15,000 gallons, at the rate of 45 cents for each 1,000 gallons.

Third. For the quantity so used for any one month exceeding

15,000 gallons and up to 30,000 gallons, at the rate of 35 cents for each 1,000 gallons.

Fourth. For the quantity over 30,000 gallons and up to and including 60,000 gallons used in any one month, at the rate of 30 cents for each 1,000 gallons.

Fifth. For the quantity so used in any one month exceeding 60,000 gallons, and up to and including 120,000 gallons, at the rate of 25 cents for each 1,000 gallons.

Sixth. For the quantity so used for any one month exceeding 120,000 gallons and up to and including 240,000 gallons, 20 cents for each 1,000 gallons.

Seventh. For the quantity so used in any one month exceeding 240,000 gallons, and up to and including 600,000, 15 cents for every 1,000 gallons, and for quantities so used exceeding 600,000 gallons, 15 cents for each 1,000 gallons.

Eighteenth. When water is furnished to hotels, steam-engines, gas machines or works, wash-houses (Chinese or otherwise), street and sidewalk sprinkling, washing stores and shop fronts, and for irrigating, where satisfactory rates cannot be agreed upon, meter rates shall govern.

Nineteenth. For water used in the city for fire purposes through hydrants, and for street sprinkling and watering street trees, \$100.00 per month.

601 Twentieth. For water required and used for purposes not specified in the above rates, the rates shall be in accordance with, and in conformity to, said above rates.

Twenty-first. For water used through hose for washing windows, sidewalks and street-sprinkling, and for irrigating gardens, lawns and grounds, \$3.50 for the first 25 feet frontage, and a like amount for each additional 25 feet, unless such additional ground is used for orchard purposes and growing small fruits, in which case the rate shall be \$1.50 for each additional 25 feet after the first 50 feet, up to and including 225 feet and all in excess of that amount, in the same block, at the rate of \$1.00 for each 25 feet.

Twenty-second. For irrigating acre property, for each acre \$3.50 per annum, and for less time than one year, such rates as may be agreed upon between the water company and the consumer; provided, the maximum use of water shall not exceed 350,000 gallons per acre, and if in excess of above amount proportionate rates shall be charged.

SEC. 2. Any person or association of persons, or water company so furnishing water in said city, shall have power in all cases to apply meters, at their own cost, and collect all meter rates. All water rates, except meter rates, are due and payable monthly, or quarterly in advance, and if not so paid, shall be subject to an addition of 5 per cent. Meter rates are due and payable monthly on presentation of bill, and upon meter rates an advance monthly deposit for each month, not exceeding three-fourths of the value of estimated quantity of water to be consumed, may be required. In all cases where meter is used, the consumer shall pay 35 cents per

month for the use, cleaning and repairing of said meters, where same has been placed at request of consumer.

602 This ordinance takes effect July 1st, 1893. Passed, approved, adopted, and ordered published by the board of trustees of the city of National City, California, this 25th day of February, 1893, by the following votes:

Trustee John G. Routson, aye.

Trustee Frank P. Reed, aye.

Trustee P. D. Vaughan, aye.

Trustee Geo. W. Deford, aye.

Trustee Geo. J. Lockie, no.

P. D. VAUGHAN,
President of the Board of Trustees.

Attest:

[SEAL.] H. A. HARBAUGH, *City Clerk.*

603

Ordinance No. 112.

An ordinance establishing water rates in the city of National City, California.

The board of trustees of the city of National City do ordain as follows:

SECTION 1. That the rates or compensation to be collected by any person, company or corporation for the use of water supplied to the city of National City, or to the inhabitants thereof or to any corporation, company, or person doing business, or using water therein, are hereby fixed for the year beginning July 1st, 1894, as hereinafter provided, and that no person, company or corporation, shall charge, collect, or receive water rates in said city, otherwise than as so established, to wit:

First. For water furnished to residences occupied by one family only, 1 to 4 rooms, \$10.00 per annum.

Residences occupied by one family only, 5 to 6 rooms, \$12.00 per annum.

Residences occupied by one family only, 7 to 8 rooms, \$14.00 per annum.

Residences occupied by one family only, 9 to 10 rooms, \$16.00 per annum.

Residences occupied by one family only, 11 to 12 rooms, \$18.00 per annum.

Residences occupied by one family only, 13 to 14 rooms, \$20.00 per annum.

Residences occupied by one family only, with more rooms, in the same ratio.

604 Second. Stores, offices, saloons and warehouses, from \$6.00 to \$25.00 per annum.

Third. To dental rooms, from \$6.00 to \$12.00 per annum.

Fourth. To bakeries, according to monthly use of flour, for each 25 barrels, \$20.00 per annum.

Fifth. To wagon and blacksmith shops, \$12.00 for the first forge, and \$6.00 for each additional forge per annum.

Sixth. To livery stables, including carriage-washing, for each horse, \$6.00 per annum.

Seventh. To persons slacking lime, 20 cents for each barrel; and cement, 10 cents for each barrel; to wetting brick, 15 cents per thousand.

Eighth. To persons keeping horse and carriage, \$6.00 per annum.

Ninth. To barber shops, for single chair, \$9.00 per annum. For each additional chair, \$5.00 per annum.

Tenth. To public watering troughs on sidewalks, \$12.00 per annum.

Eleventh. To water-closets, private, \$6.00 per annum, and for each urinal \$2.00 per annum.

Twelfth. Water-closets in public buildings, \$24.00 per annum. Lodging-houses, boarding-houses, and hotels, \$12.00 per annum; for each urinal, \$6.00 per annum.

Thirteenth. To bath-tubs, private, in one family, \$4.00 per annum.

Fourteenth. To bath-tubs, public, in barber shops and boarding-houses, \$18.00 per annum.

Fifteenth. To horse or cow, \$4.00 per annum.

Sixteenth. To coffee-houses and restaurants, from \$18.00 to \$36.00 per annum.

Seventeenth. Meter rates.—First. For quantities up to ten 605 thousand gallons in any one month, at the rate of 55 cents for each 1,000 gallons.

Second. For the quantity so used in any one month exceeding 10,000 gallons and up to 15,000 gallons, at the rate of 45 cents for each 1,000 gallons.

Third. For the quantity so used for any one month exceeding 15,000 gallons and up to 30,000 gallons at the rate of 35 cents for each 1,000 gallons.

Fourth. For the quantity over 30,000 gallons and up to and including 60,000 gallons used in any one month, at the rate of 30 cents for each 1,000 gallons.

Fifth. For the quantity so used in any one month exceeding 60,000 gallons, and up to and including 120,000 gallons, at the rate of 25 cents for each 1,000 gallons.

Sixth. For the quantity so used for any one month exceeding 120,000 gallons and up to and including 240,000 gallons, 20 cents for each 1,000 gallons.

Seventh. For the quantity so used in any one month exceeding 240,000 gallons and up to and including 600,000 gallons, 15 cents for every 1,000 gallons, and for quantities so used exceeding 600,000 gallons, 15 cents for each 1,000 gallons.

Eighteenth. When water is furnished to hotels, steam-engines, gas machines or works, wash-houses (Chinese or otherwise), street and sidewalk sprinkling, washing stores and shop fronts, and for irrigating, where satisfactory rates cannot be agreed upon, meter rates shall govern.

Nineteenth. For water used in the city for fire purposes through hydrants, and for street sprinkling and watering street trees, \$100.00 per month.

606 Twentieth. For water required and used for purposes not specified in the above rates, the rates shall be in accordance with, and in conformity to, said above rates.

Twenty-first. For water used through hose for washing windows, sidewalks and street-sprinkling, and for irrigating gardens, lawns and grounds, \$3.50 for the first 25 feet frontage, and a like amount for each additional 25 feet, unless such additional ground is used for orchard purposes and growing small fruits, in which case the rate shall be \$1.50 for each additional 25 feet, after the first 50 feet, up to and including 225 feet, and all in excess of that amount, in the same block, at the rate of \$1.00 for each 25 feet.

Twenty-second. For purposes of fixing water rates for irrigating acre property, the lands within said city are classified as follows:

All lands to which the easement and flow of water for irrigation has been or shall be annexed by the consent or voluntary act of any person, company or corporation engaged in furnishing supply of water, are hereby put into class one.

And all lands to which the easement and flow of water for irrigation has not been or shall not be annexed by the consent or voluntary act of any person, company or corporation engaged in furnishing supply of water, are hereby put into class two.

For irrigating acre property of class one, the rate is hereby fixed for each acre at \$3.50 per annum, and for less time than one year, such rate as may be agreed upon between the furnisher and consumer.

For irrigating acre property of class two, the rate is hereby fixed for each acre at \$7.00 per annum, and for less time than one year, such rate as may be agreed upon between the furnisher and consumer.

607 Provided, that the maximum use of water for irrigation of lands of any class shall not exceed 350,000 gallons per acre; but, if the use is in excess of said amount, proportionate rates are chargeable.

SEC. 2. Any person or association of persons, or water company so furnishing water in said city, shall have power in all cases to apply meters, at their own cost, and collect all meter rates. All water rates, except meter rates, are due and payable monthly, or quarterly in advance and if not so paid, shall be subject to an addition of 5 per cent. Meter rates are due and payable monthly on presentation of bill, and upon meter rates an advance monthly deposit, for each month, not exceeding three-fourths of the value of estimated quantity of water to be consumed, may be required. In all cases where meter is used, the consumer shall pay 35 cents per month for the use, cleaning and repairing of said meters, where same has been placed at request of consumer.

This ordinance takes effect July 1st, 1894. Passed, approved, adopted and ordered published by the board of trustees of the city

of National City, California, this 28th day of February, 1894, by the following vote:

Trustee Geo. W. Deford, aye.

Trustee Geo. J. Lockie, aye.

Trustee T. J. Swayne, no.

Trustee John G. Routson, aye.

Trustee P. D. Vaughan, aye.

P. D. VAUGHAN,

President of the Board of Trustees.

Attest:

[SEAL.] H. A. HARBAUGH, *City Clerk.*

Nat. City record dated Thursday, Mar. 1, 1894. J. E. B. 10, 10, '95.

(Endorsed:) U. S. circuit court, southern district of California. S. D. L. & T. Co. vs. National City. 648. Special Examiner's Exhibit "Defendant B." Geo. J. Leovy, special examiner. Filed Apr. 4, 1896. Wm. M. Van Dyke, clerk.

609

(D.)

OFFICIAL TIME-CARD NO. 21, TAKING EFFECT MAY 14, 1892.

NATIONAL CITY & OTAY RAILWAY.

THE POPULAR ROUTE

From San Diego to the following especial places of interest:

National City, Chula Vista, Sweetwater dam (highest in America), La Presa, Oneonta, and Tia Juana (Old Mexico).

Stations and Rates of Fare from San Diego.

	Dis.	Fare.		Dis.	Fare.
Main line:			Tibbetts'		45c.
San Diego, L. St.		0c.	Buck's		45c.
San Diego, 25th St.		5c.	Ware's		50c.
San Diego, 28th St.	1.89	5c.	Tia Juana Heights	18.19	55c.
San Diego, 31st St.	2.23	5c.	Tia Juana	18.95	55c.
San Diego, Una St.		5c.			
City limits	3.73	5c.	Sweetwater branch:		
National City, 8th St.		10c.	Sweetwater Junct'n....	7.56	15c.
Nat. City, 3d Ave.		10c.	Munger's ranch.		20c.
Nat. City, 18th St.		10c.	Bonita	10.51	25c.
Nat. City, Land Co.'s.	5.60	10c.	Bonnie Brae.		30c.
Nat. City, Kimball's.		10c.	Sunnyside	12.20	30c.
Nat. City, "Terrace"		10c.	Highlands		35c.
Sweetwater Junct'n	7.56	15c.	Sweetwater dam.	13.35	35c.
Chula Vista	8.97	20c.	La Presa	15.36	40c.
Fourth St. Siding	10.29	25c.			
Otay	12.26	30c.	Oneonta branch:		
Madison's		35c.	Tia Juana Junct'n	14.50	40c.
La Punta.		35c.	Oneonta.	16.32	45c.

Commutation Tickets.

20 per cent. discount to points south of National City.

10 per cent. discount between National City and San Diego.

Extra discounts to residents of Chula Vista.

612

SPECIAL EXCURSIONS

TO

TIA JUANA

(Old Mexico)

AND

SWEETWATER DAM!

Leave San Diego, foot of Fifth street, every Monday, Wednesday, and Saturday at 9.30 a. m.

Tourists will be given 50 minutes at Tia Juana to cross the border line into Old Mexico and visit the custom-house and curiosity stores. Beautiful onyx and quaint Mexican curiosities can be bought there at reasonable prices.

On the return trip, one hour and twenty minutes will be given at National City for lunch at the International hotel (price, 25 cents.)

Leaving National City at 2 p. m., tourists visit the great


SWEETWATER DAM,

the highest in the United States. Length at base, 76 feet. Length at top, 396 feet. Thickness at base, 46 feet. Thickness at top, 12 feet. Height of dam from bed rock, 90 feet. Reservoir covers 700 acres. Capacity, 6,000,000,000 gallons. Solid granite and Portland cement. Commenced November 17, 1886; completed April 7, 1888. Cost, \$250,000.

Returning, arrive at San Diego at 4.44 p. m.

FARE.

From San Diego, for round trip.....	\$1.00
From National City, for round trip....	.80
From National City, for round trip and back to San Diego..	.90

 For further information and tickets apply at Santa Fé and Southern Pacific Railway ticket offices, all hotels in San Diego, or station foot of Fifth street.

613 EXTRAORDINARY INDUCEMENTS OFFERED TO MANUFACTURERS.

A large tract of land is reserved in the center of National City, terminus of the A., T. & S. F. R. R.,

TO BE DONATED

to locating manufacturers. Railroad switches through entire tract.

Very accessible to deep-water wharves. Transcontinental rate point. Rail connection with all wharves and railroads in San Diego and National City. Ample pure, cheap water.

Low rents and reasonable prices for dwelling lots. Property of

SAN DIEGO LAND & TOWN CO.,

WHO ARE ALSO OWNERS OF

CHULA VISTA.

Five thousand acres, subdivided into five-acre tracts, to be sold only to those who will improve the same at once; improvements to consist of a house, to cost not less than \$2,000. Entire tract covered with water mains, filled with pure mountain water from the Sweetwater reservoir (capacity 6,000,000,000 gallons). National City & Otay railway in operation through center of property, with frequent trains to San Diego and National City.

More than fifty modern houses completed and twenty-five more under contract to be completed within six months.

Low prices for the first few who locate.

20,000 ACRES

IRRIGATED FRUIT AND FARM LANDS,

immediately adjacent to San Diego and National City. Abundance of water in pipes at \$3.50 per acre per year. Choice locations in Sweetwater valley at \$250.00 per acre, less a rebate of \$50.00 per acre for each acre planted to citrus trees and maintained for one year.

For information, terms, and prices, inquire of

JOHN E. BOAL,

*Acting General Manager, San Diego Land & Town Co.,
National City, Cal.*

614 (Endorsed:) U. S. circ. court, southern dist. of California. S. D. L. & T. Co. vs. National City. 648. Special Examiner's Exhibit "Defendant C." Geo. J. Leovy, special examiner. Filed Apr. 4, 1896. Wm. M. Van Dyke, clerk.

615

(C.)

OFFICIAL TIME-CARD No. 17, TAKING EFFECT NOVEMBER 6, 1889.

NATIONAL CITY & OTAY RAILWAY,

THE POPULAR ROUTE

From San Diego to the following especial places of interest:

National City, Chula Vista, Sweetwater dam (highest in America), La Presa, Oneonta, and Tia Juana (Old Mexico).

Stations and Rates of Fare from San Diego.

	Dis.	Fare.		Dis.	Fare.
Main line:					
San Diego, L St.		0c.	Tia Juana Junction....	14.50	40c.
San Diego, 11th St.		5c.	Oneonta.....	16.32	45c.
San Diego, 25th St.		5c.	Sweetwater branch:		
San Diego, 28th St.	1.89	5c.	Sweetwater Junct'n....	7.50	15c.
San Diego, 31st St.	2.23	5c.	Munger's ranch.....		20c.
San Diego, Una St.		5c.	Bonita.....	10.51	25c.
City limits.....	3.73	5c.	Bonnie Brae.....		30c.
National City, 8th St....		10c.	Sunnyside.....	12.20	30c.
Nat. City, 3d Ave.....		10c.	Highlands.....		35c.
Nat. City, 18th St.....		10c.	Sweetwater dam.....	13.35	35c.
Nat. City, Land Co.'s....	5.60	10c.	La Presa.....	15.36	40c.
Nat. City, Kimball's....		10c.	Tia Juana branch:		
Nat. City, "Terrace"....		10c.	Tia Juana Junct'n....	14.50	40c.
Sweetwater Junct'n....	7.56	15c.	Tibbetts'.....		45c.
Chula Vista.....	8.97	20c.	Buck's.....		45c.
Fourth St. siding.....	10.29	25c.	Ware's.....		50c.
O ay.....	12.26	30c.	Tia Juana Heights.....	18.19	55c.
Madison's.....		35c.	Tia Juana.....	18.95	55c.
Fruitland.....		35c.			
Willow Park.....		40c.			

Commutation tickets, 20 per cent. discount to points south of National City. Extra discount to residents of Chula Vista.

616

South Bound.

Leave San Diego.	Leave 31st St.	Leave C. limits.	Arrive Nat'l City.
9.00 a. m.	9.09 a. m.	9.15 a. m.	9.25 a. m.
10.00 a. m.	10.09 a. m.	10.15 a. m.	10.25 a. m.
1.00 p. m.	1.09 p. m.	1.15 p. m.	1.25 p. m.
2.00 p. m.	2.09 p. m.	2.15 p. m.	2.25 p. m.
4.00 p. m.	4.09 p. m.	4.15 p. m.	4.25 p. m.
5.15 p. m.	5.24 p. m.	5.30 p. m.	5.40 p. m.
9.30 p. m.	9.39 p. m.	9.45 p. m.	9.55 p. m.
10.15 p. m.	10.24 p. m.	10.30 p. m.	10.40 p. m.

Train leaving San Diego at 9.30 p. m., Sundays only.

Train leaving San Diego at 10.15 p. m. daily, except Sunday.

North Bound.

Leave Nat'l City.	Leave C. limits.	Leave 31st St.	Arrive San Diego.
8.09 a. m.	8.19 a. m.	8.25 a. m.	8.34 a. m.
9.25 a. m.	9.35 a. m.	9.41 a. m.	9.50 a. m.
11.50 a. m.	12.00 m.	12.06 p. m.	12.15 p. m.
1.25 p. m.	1.35 p. m.	1.41 p. m.	1.50 p. m.
3.20 p. m.	3.30 p. m.	3.36 p. m.	3.45 p. m.
4.35 p. m.	4.45 p. m.	4.51 p. m.	5.00 p. m.
7.00 p. m.	7.10 p. m.	7.16 p. m.	7.25 p. m.

SAN DIEGO AND CHULA VISTA.

617 *North Bound.**South Bound.*

P. M.	P. M.	P. M.	P. M.	A. M.	Stations.	A. M.	A. M.	P. M.	P. M.	P. M.	P. M.	P. M.	P. M.
...	...	7.25	5.00	1.50	9.50	8.34 Ar.	...	Lv.	10.00	2.00	4.00	5.15	9.30
...	...	7.16	4.51	1.41	9.41	8.25 Ar.	San Diego, 5th & L.	Lv.	10.09	2.09	4.09	5.24	9.39
...	...	7.10	4.45	1.35	9.35	8.19 Ar.	.....31st St	Lv.	10.15	2.15	4.15	5.30	9.45
11.50	11.05	7.00	4.30	1.20	9.20	8.09 Ar.	.....City limits.	Lv.	10.30	2.30	4.31	5.40	9.55
11.40	10.55	6.50	4.21	1.10	9.10	8.02 Ar.	.....National City.	Lv.	10.40	2.40	4.41	5.48	10.05
11.35	10.45	6.41	4.12	1.00	9.00	7.55 Lv.	.....Sweetwater Jc.	Lv. 8.05	10.50	2.50	4.50	5.55	10.15
							.....Chula Vista.	Ar. 8.15	11.00				

~~10.35~~ Train leaving Chula Vista at 7.55 at 8.05 a. m. daily, except Sunday. Train leaving Chula Vista at 10.45 p. m. Sundays only.
 Trains leaving Chula Vista at 11.35 daily, except Sundays.

618 In San Diego get time-cards, tickets, and information regarding freight and passengers at freight and passenger station, cor. Fifth and L Sts.

North Bound. SAN DIEGO, SWEETWATER DAM, & LA PRESA. *South Bound.*

P. M.	A. M.	A. M.	Dist.	Stations.	Dist.	A. M.	P. M.	P. M.
3.45	12.15	8.34 Ar.	15.36	San Diego, 5th & L.....		Lv. 9.00	1.00	4.00
3.20	11.50	8.09 Lv.	9.76	National City.....	5.60	Lv. 9.30	1.30	4.30
3.05	11.35	8.02 Lv.	7.80	Sweetwater Jc.....	7.56	Lv. 9.40	1.40	4.40
2.40	11.10	7.35 Lv.	2.01	Sweetwater Dam.....	13.35	Lv. 10.05	2.05	5.05
2.30	11.00	7.25 Lv.		La Presa.....	15.36	Ar. 10.15	2.15	5.15

North Bound. SAN DIEGO AND ONEONTA. *South Bound.*

P. M.	P. M.	Dist.	Stations.	Dist.	A. M.	P. M.
7.25	1.50 Ar.	16.32	San Diego, 5th & L.....		Lv. 10.00	4.00
7.00	1.25 Lv.	10.72	National City.....	5.60	Lv. 10.30	4.31
6.50	1.10 Lv.	8.76	Sweetwater Junc.....	7.56	Lv. 10.40	4.41
6.41	1.00 Lv.	7.35	Chula Vista.....	8.97	Lv. 10.50	4.50
6.27	12.46 Lv.	4.06	Otay.....	12.26	Lv. 11.04	5.05
6.18	11.26 Lv.	1.82	Tia Juana Junc'n.....	14.50	Lv. 11.13	5.14
6.12	11.20 Lv.		Oneonta.....	16.32	Ar. 11.19	5.20

North Bound. SAN DIEGO AND TIA JUANA. *South Bound.*

P. M.	P. M.	A. M.	A. M.	Dist.	Stations.	Dist.	A. M.	P. M.	P. M.
5.00	1.50	9.50	8.34 Ar.	18.95	San Diego, 5th & L.....		Lv. 10.00	2.00	5.15
4.35	1.25	9.25	8.09 Lv.	13.35	National City.....	5.60	Lv. 10.30	2.30	5.40
4.21	1.10	9.10	8.02 Lv.	11.39	Sweetwater Junc.....	7.56	Lv. 10.40	2.40	5.48
4.12	1.00	9.00	7.55 Lv.	9.98	Chula Vista.....	8.97	Lv. 10.50	2.50	5.55
3.58	12.46	8.46	7.40 Lv.	6.69	Otay.....	12.26	Lv. 11.04	3.03	6.09
3.50	12.37	8.37	7.31 Lv.	4.45	Tia Juana Jc.....	14.50	Lv. 11.26	3.11	6.18
3.33	12.20	8.20	7.14 Lv.		Tia Juana.....	16.95	Ar. 11.43	3.28	6.35

☞ Train leaving Tia Juana at 7.14 a. m. daily, except Sunday. Train leaving Tia Juana at 8.20 a. m. Sundays only.

Commutation tickets, 20 per cent. discount to points south of National City.

Extra discounts to residents of Chula Vista.

619 EXTRAORDINARY INDUCEMENTS OFFERED TO MANUFACTURERS.

A large tract of land is reserved in the center of National City, terminus of the A., T. & S. F. R. R.,

TO BE DONATED

to locating manufacturers. Railroad switches through entire tract.

Very accessible to deep-water wharves. Transcontinental rate point. Rail connection with all wharves and railroads in San Diego and National City. Ample pure, cheap water.

Low rents and reasonable prices for dwelling lots. Property of

SAN DIEGO LAND & TOWN CO.,

WHO ARE ALSO OWNERS OF

CHULA VISTA.

Five thousand acres, subdivided into five-acre tracts, to be sold only to those who will improve the same at once; improvements to consist of a house, to cost not less than \$2,000. Entire tract covered with water mains, filled with pure mountain water from the Sweetwater reservoir (capacity 6,000,000,000 gallons). National City & Otay railway in operation through center of property, with frequent trains to San Diego and National City.

More than fifty modern houses completed and twenty-five more under contract to be completed within six months.

Low prices for the first few who locate.

20,000 ACRES

IRRIGATED FRUIT AND FARM LANDS,

immediately adjacent to San Diego and National City. Abundance of water in pipes at \$3.50 per acre per year. Choice locations in Sweetwater valley at \$250.00 per acre, less a rebate of \$50.00 per acre for each acre planted to citrus trees and maintained for one year.

For information, terms, and prices inquire of

WM. G. DICKINSON,

General Manager, National City, Cal.

Or to

C. E. HEATH & CO.,

General Agents, 837 Fifth Street, San Diego.

(Endorsed :) U. S. circuit court, southern dist. of California. S. D. L. & T. Co. vs. National City. 648. Special Examiner's Exhibit Defendant D. Geo. J. Leovy, special examiner. Filed Apr. 4, 1896. Wm. M. Van Dyke, clerk.

620

National City Water Rates.

	Ordinances.		
	No. 107.	No. 112.	No. 118.
Private bath-tubs.....per annum..	\$4.00	\$4.00	\$3.60
Public bath-tubs.....	18.00	18.00	18.00
Private water-closets.....	6.00	6.00	4.80
Public water-closets.....	12.00	12.00	12.00
Mu'p'c'l water-closets.....	24.00	24.00	
Private urinal.....	2.00	2.00	2.40
Public urinal.....	6.00	6.00	6.00
Stores..... { from..	6.00	6.00	12.00
to..	25.00	25.00	18.00
Offices.. { from..	6.00	6.00	6.00
to..	25.00	25.00	12.00
Saloons { from..	6.00	6.00	18.00
to..	25.00	25.00	
Blacksmith & wagon { first forge..	12.00	12.00	12.00
shops { each extra..	6.00	6.00	6.00
Laundries.. {	Not men-	Not men-	12.00
Drug stores. ditto.	tioned.	tioned.	24.00
Barber shops..... { first chair..	9.00	9.00	21.00
each extra..	5.00	5.00	9.00
Restaurants & coffee-houses.. { from..	18.00	18.00	5.00
to..	36.00	36.00	18.00
Dental rooms.. { from..	6.00	6.00	42.00
to..	12.00	12.00	12.00
Bakeries, each 25 bbls. of flour..	20.00	20.00	
For each horse or cow.....	4.00		21.00
For slacking lime, per bbl.....	0.20	0.20	4.00
For mixing cement, per bbl.....	0.10	0.10	0.15
Wetting brick, per M.....	0.15	0.15	0.10
To city for public use, not exceed....	1,200.	1,200.	0.10
To irrigate acre property per annum..	3.50	3.50	
*Ordinance 112, acre property, C ² , 255, {			
1.....\$3.50 per annum..	*350,000 gals.	*350,000 gals.	
*Ordinance 112, acre property, C ² , 255, {	per A.	per A.	
2.....\$7.00 per annum..			
Orchards & small fruit.....			4.00
Nurseries & vegetable gardens..			7.00
621 Orchards & small fruit (per lot).....	* On sliding	* On sliding	1.50
	scale from	scale from	
	\$3.50 to	\$3.50 to	
	\$1.00.	\$1.00.	
Nurseries & vegetable gardens (per lot).....			2.00

[* In pencil in copy.]

Meter Rates per Thousand Gallons.

	Ordinances.	
	No. 112.	No. 118.
Up to 10,000 galls. per month.....	\$0.55	
Up to 5,000 " ".....		\$0.40
From 10,000 to 15,000 galls. per month.....	0.45	
From 5,000 to 15,000 " ".....		0.30
From 15,000 to 30,000 " ".....	0.35	
For all exceeding 15,000 galls. per month.....		0.20
From 30,000 to 60,000 galls. per month.....	0.30	
" 60,000 to 120,000 " ".....	0.25	
" 120,000 to 240,000 " ".....	0.20	
" 240,000 to 600,000 " " and over.....	0.15	
For gardens & nursery stock on lots.....		0.20
For orchards & small fruit on lots.....		0.10
For irrigating acre property.....		0.02

Meter rates in ord. 107 same as in ord. 112.

(Endorsed :) U. S. circuit court, southern district of California. S. D. L. & T. Co. *vs.* National City. 648. Special Examiner's Exhibit "Defendant E." Geo. J. Leovy, special examiner. Filed Apr. 4, 1896. Wm. M. Van Dyke, clerk.

622 In the Supreme Court of the United States.

THE SAN DIEGO LAND AND TOWN COM-
pany, Appellants,

vs.

THE CITY OF NATIONAL CITY, a Municipal
Corporation, and John Routson, George
W. Deford, S. S. Johnson, J. H. Kincaid,
and Fred H. Sanborn, Trustees of said
City, Respondents.

} Assignment of Errors.

Now comes the above-named appellant, The San Diego Land and Town Company, by John D. Works, Lewis R. Works, G. Wiley Wells, and Bradner W. Lee, its attorneys, and says that in the record and proceedings in the above-entitled matter there is manifest error in this, to wit:

I.

The circuit court of the United States, ninth circuit, southern district of California, erred in considering as a part of the evidence in this suit all testimony and evidence offered to prove the enhancement of the value of the appellant's lands by the construction of the water plant and system mentioned in the bill of complaint herein, and of the revenue derived from the sales of its lands.

II.

Said court erred in considering evidence taken in the action tending to show that the plant of the appellant could, at the time of the trial, have been duplicated for less than its original and actual cost.

623

III.

Said court erred in receiving and considering evidence showing that the time for meetings of the board of trustees of National City was fixed by law.

IV.

All of the evidence above mentioned was and is immaterial and irrelevant and should not have been considered by said court and should not be considered by this court on appeal.

V.

The said circuit court erred in not passing upon and deciding the question put in issue in the action, whether section 1 of article XIV of the constitution of the State of California and statutes enacted in pursuance thereof are not in violation of the Constitution of the United States.

VI.

Said circuit court erred in holding that the appellant could not be heard to question the constitutionality of the laws of California, because it "came into the State of California and acquired the water and water rights which form the basis of its suit under and by virtue of laws passed pursuant to that provision of the constitution of the State which it now seeks to assail as being contrary to the provisions of the Constitution of the United States."

VII.

Said circuit court erred in its holding that in determining whether the rates in controversy were just and reasonable rates for furnishing water to consumers the present value and not the actual and reasonable cost of the appellant's plant should be considered.

VIII.

Said circuit court erred in its holding that the appellant has no legal right to charge any compensation for a "water right;" that it can be compelled by law to supply water to the lands of any consumer demanding it, thereby vesting in him a perpetual right to the flow and use of water for purposes of irrigation without compensation.

IX.

Said circuit court erred in holding that there is no such thing under the laws of the State of California as a water right, and that no charge can be made therefor.

X.

Said circuit court erred in its holding and conclusion that the right of eminent domain or the right to appropriate the waters of the streams in the State of California or the franchise to sell or dispose of or distribute the water appropriated was vested in the appellant by the constitution of the State of California, or that the appellant accepted or received any benefit from such constitution.

XI.

Said circuit court erred in its holding that the appellant had or could have received or accepted any benefits under the constitution or laws of the State of California, or that by reason of the acceptance of any such benefits it was or could be charged with any corresponding burden, and particularly with the burden of supplying water to consumers in such way as to vest such consumers with a perpetual water right appurtenant to their lands without compensation.

XII.

Said circuit court erred in holding that the net income of the appellant from its water department for the year 1894 was \$7,850.18; for the year 1893, \$13,160.58; for the year 1892, \$7,547.93, 625 and for the year 1891, \$4,449.27, or that the appellant received any net profits from its said department.

XIII.

The said circuit court erred in holding that for the appellant's profits or losses incurred in furnishing water to consumers such consumers of water within National City are not responsible, and that "such losses, if any such have been sustained, must be borne by the complainant (appellant) as best it can, like all other companies and individuals who embark in undertakings whose realization does not come up to their expectations and hopes."

XIV.

The said circuit court erred in holding that the rates established by the ordinance complained of will yield a fair interest on that portion of the value of the property or plant of the appellant embraced within National City.

XV.

The said circuit court erred in holding that it was immaterial that the complainant (appellant), in the construction of its plant and carrying on its work, borrowed \$300,000.00 and issued its bonds therefor, and that a borrower of money on such bonds, like a borrower of money on a mortgage, does so with his eyes open, and must take the chances that everybody must take who engages in business transactions.

XVI.

The said circuit court erred in dismissing the appellant's bill.

XVII.

626 The constitution and statutes of the State of California, providing for the fixing of rates for furnishing water to cities and towns and their inhabitants by the common councils or other governing bodies of such cities or towns are in violation of the Constitution of the United States, and therefore void, and the said circuit court erred in not so holding.

Wherefore the said San Diego Land and Town Company prays that the decree and order of the said circuit court of the United States, ninth circuit, southern district of California, entered in this cause be reversed, and that said court be ordered to enter a decree declaring the ordinance in controversy in this action illegal and void.

JOHN D. WORKS,
LEWIS R. WORKS,
G. WILEY WELLS,
BRADNER W. LEE.

Solicitors for Appellant,

Rooms 11-17 Baker Block, Los Angeles, California.

(Endorsed:) The San Diego Land and Town Company *vs.* The City of National City. Assignment of errors. No. 648. U. S. circuit court, ninth circuit, southern district of California. The San Diego Land & Town Company, appellant, *vs.* The City of National City, a municipal corporation, respondents. Assignment of errors. Filed Jul- 20, 1896. Wm. M. Van Dyke, clerk. Wells, Works & Lee, rooms 11, 12, 13, 14, 15, 16, 17 Baker block, Los Angeles, Cal., solicitors for appellants.

627 In the Circuit Court of the United States, Ninth Circuit,
Southern District of California.

THE SAN DIEGO LAND & TOWN COMPANY, Appellant, }
vs.
 THE CITY OF NATIONAL CITY ET ALS., Respondents. }

The above-named complainant, The San Diego Land & Town Company, considering itself aggrieved by the order and decree entered on May 21st, 1896, in the above-entitled proceedings, doth hereby appeal from said order to the Supreme Court of the United States, and it prays that this its appeal may be allowed, and that a transcript of the record and proceedings and papers upon which

said order and decree was made, duly authenticated, may be sent to the Supreme Court of the United States.

JOHN D. WORKS,
LEWIS R. WORKS,
G. WILEY WELLS,
BRADNER W. LEE,

*Solicitors for Complainant and Appellant,
The San Diego Land & Town Company.*

Los Angeles, Cal., July 14th, 1896.

And now, to wit, on July 20th, 1896, it is ordered in open court that the appeal be allowed as prayed for.

ROSS,
Circuit Judge.

628 (Endorsed :) No. 648. U. S. circuit court, ninth circuit, southern district of California. The San Diego Land & Town Company, appellant, *vs.* The City of National City *et als.*, respondents. Prayer for appeal. Filed Jul-20, 1896. Wm. M. Van Dyke, clerk. Wells, Works & Lee, rooms 11, 12, 13, 14, 15, 16, 17 Baker block, Los Angeles, Cal., solicitors for complainant & appellant.

629 At a stated term, to wit, the January term, A. D. 1896, of the circuit court of the United States of America of the ninth judicial circuit in and for the southern district of California, held at the court-room, in the city of Los Angeles, on Monday, the twentieth day of July, in the year of our Lord one thousand eight hundred and ninety-six.

Present: The Honorable Erskine M. Ross, circuit judge.

THE SAN DIEGO LAND AND TOWN COMPANY, Complainant, }
vs. }

THE CITY OF NATIONAL CITY, a Municipal Corporation,
and John G. Routson, George W. Deford, S. S. Johnston,
J. H. Kincaid, and Fred H. Samborn, Trustees of said
City, Defendants. } No. 648.

On motion of John D. Works, Esq., of counsel for complainant, it is ordered that an appeal to the Supreme Court of the United States from the final decree heretofore filed and entered herein be, and the same hereby is, allowed, and that a certified transcript of the record, testimony, exhibits, and of all proceedings and papers herein upon which the said decree was made, be transmitted to said Supreme Court of the United States; it is further ordered that said appeal be, and the same hereby is, made returnable on the 17th day of September, 1896; it is further ordered that the bond on appeal be, and the same hereby is, fixed at one thousand dollars (\$1,000).

630 In the Circuit Court of the United States, Ninth Circuit,
Southern District of California.

THE SAN DIEGO LAND & TOWN COMPANY, Appellant,

vs.

THE CITY OF NATIONAL CITY, a Municipal Corporation, and
John G. Routsan, George W. Deford, S. S. Johnston, J. H. Kin-
caid, and Fred H. Sanborn, Trustees of said City, Respondents.

Know all men by these presents that we, the San Diego Land & Town Company, a corporation organized and existing under the laws of the State of Kansas and with its principal place of business in National City, State of California, and Heman Copeland, of the city of National City, and E. Winsby, of the city of San Diego, in the said State of California, are held and firmly bound unto the above-named city of National City, a municipal corporation, and John G. Routsan, George W. Deford, S. S. Johnston, J. H. Kincaid, and Fred H. Sanborn, trustees of said city, in the sum of one thousand dollars (\$1,000.00), to be paid to the said parties; for the payment of which, well and truly to be made, we bind ourselves and each of us, our and each of our heirs, executors, administrators, and successors, jointly and severally, firmly by these presents.

Sealed with our seals and dated the 10th day of July, in the year of our Lord one thousand eight hundred and ninety-six.

Whereas the above-named San Diego Land & Town Com-
pany has prosecuted an appeal to the Supreme Court of the
United States to reverse the decree rendered in the above-
entitled suit by the judge of the circuit court of the United States
for the ninth circuit, southern district of California:

Now, therefore, the condition of this obligation is such that if the
above-named San Diego Land & Town Company shall prosecute
said appeal to effect and answer all damages and costs if it shall
fail to make said appeal good, then this obligation shall be void;
otherwise the same shall be and remain in full force and virtue.

SAN DIEGO LAND & TOWN COMPANY,

By JOHN E. BOAL, *General Manager*.

HEMAN COPELAND.

E. WINSBY.

[SEAL.]
[SEAL.]
[SEAL.]

Sealed and delivered and taken and acknowledged this 10th day
of July, 1896, before me—

[SEAL.]

GEO. W. BEERMAKER,

Notary Public in and for the County of

San Diego, State of California.

Approved by—

Circuit Judge.

632 STATE OF CALIFORNIA, }
County of San Diego, } ss:

Heman Copeland and E. Winsby, the sureties whose names are
subscribed to the above bond, being severally duly sworn, each for

himself says that he is a resident and freeholder in the county of San Diego, State of California, and is worth the sum in said bond specified as the penalty thereof over and above all his just debts and liabilities, exclusive of property exempt from execution.

HEMAN COPELAND.
E. WINSBY.

Subscribed and sworn to before me this 17th day of July, 1896,
as to Heman Copeland only.

[SEAL.]

GEO. W. BEERMAKER,
*Notary Public in and for the County of
San Diego, State of California.*

Subscribed and sworn to by E. Winsby before me this 18th day
of July, 1896.

[SEAL.]

LEWIS R. WORKS,
*Notary Public in and for the County of
San Diego, State of California.*

[Seal of A. L. Ross, Notary Public.]

(Endorsed :) No. 648. U. S. circuit court, ninth circuit, southern district of California. The San Diego Land & Town Company, appellant, *vs.* The City of National City, a municipal corporation, *et al.*, respondents. Undertaking on appeal. The within bond approved this July 20, 1896. Ross, circuit judge. Filed Jul- 20, 1896.

633 Wm. M. Van Dyke, clerk. Wells, Works & Lee, rooms 11,
12, 13, 14, 15, 16, 17 Baker block, Los Angeles, Cal., solicitors
for appellants.

634 In the Circuit Court of the United States of America, Ninth
Judicial Circuit, in and for the Southern District of
California.

THE SAN DIEGO LAND AND TOWN COMPANY, a Corpo-
ration, Complainant,

vs.

THE CITY OF NATIONAL CITY, a Municipal Corpora-
tion, and John G. Routson, George W. Deford, S. S.
Johnston, J. H. Kincaid, and Fred H. Samborn,
Trustees of said City, Defendants. } No. 648.

I, Wm. M. Van Dyke, clerk of the circuit court of the United States of America of the ninth judicial circuit in and for the southern district of California, do hereby certify the foregoing 633 written and printed pages, numbered from 1 to 633, inclusive, and comprised in two volumes, numbered respectively volumes 1 and 2, including diagrams, maps, and plats, to be a full, true, and correct copy of the record, testimony, exhibits, and of all proceedings and papers in the above and therein entitled cause, and that the same together constitute the transcript of the record on appeal to the Supreme Court of the United States in said cause.

I do further certify that the cost of the foregoing record is \$343.80, and that the amount thereof has been paid me by the appellant in said cause.

In testimony whereof I have hereunto set my hand and affixed the seal of said circuit court of the United States for the
635 southern district of California this 9th day of September, in the year of our Lord one thousand eight hundred and ninety-six, and of the Independence of the United States the one hundred and twenty-first.

[Seal U. S. Circuit Court, Southern Dist. Cal., 1886.]

WM. M. VAN DYKE,
*Clerk of the United States Circuit Court
for the Southern District of California.*

Endorsed on cover: Case No. 16,384. S. California C. C. U. S. Term No., 25. The San Diego Land and Town Company, appellant, vs. The City of National City and John G. Routsan, George W. Deford, S. S. Johnston, J. H. Kincaid, & Fred H. Sanborn, trustees of said city. Filed September 17, 1896.